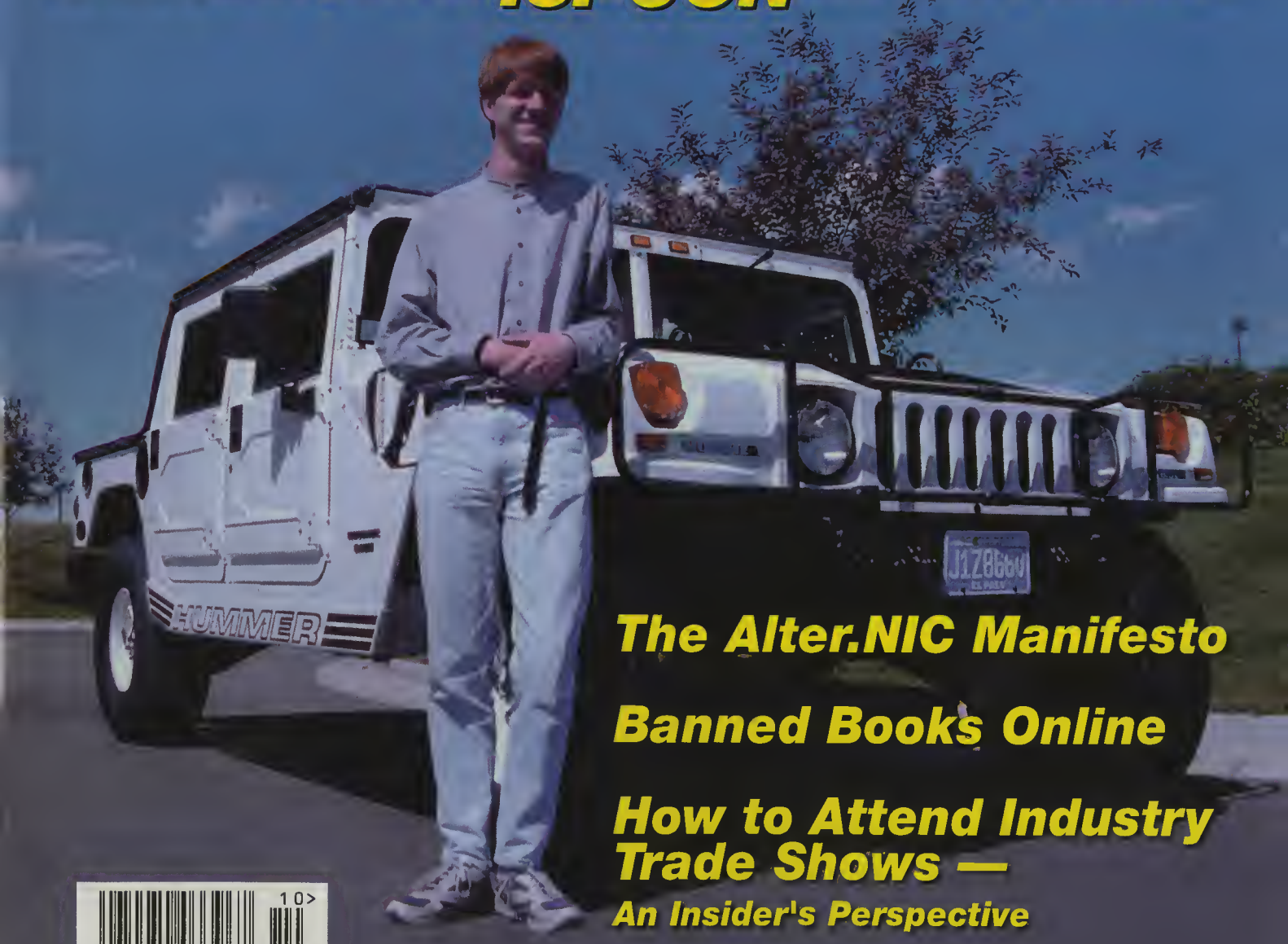
October 1997

BOARDWATCH MAGAZINE

Guide to Internet Access and the World Wide Web

THE WINNER — Steve Wilcox of Palmer Divide Communications Drives Away from ISPCON with a Hummer



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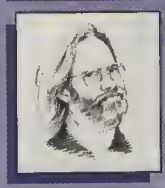

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EDITOR'S NOTES by Jack Rickard

ISPCON POST MORTEM

The 1997 Internet Service Providers Convention (ISPCON) was held August 20-23 in San Francisco. And frankly, I'm more than a little hot, wet, and breathy about the outcome, so please forgive my taking up an editorial in going on and on about it. I can't help myself.

The show was comically counterpointed by a Gartner Group study that they touted unbelievably hard (why) with massive numbers of press releases predicting the demise of the independent Internet service provider and a reduction to less than 500 companies by the year 2002. This all came out, coincidentally, the day before the show opened. We had a total of 4,274 attendees, with a sufficient number of those deciding to attend at the last minute that our registration process embarrassingly broke down in public.

I did receive a good bit of pressure from attendees to counter the Gartner group study, which I gracefully declined to do. I think standing in the middle of nearly 4,300 ISPs countered it quite well for the moment and for those who can't get it from that, I'm not likely to be of much assistance. But the basic problem is with the year 2002. Mosaic for Windows was released November 30, 1993 and the Web pretty much went from about 300 sites at that date to what it is today, not yet four years later. If you read our review of Mosaic in the January 1994 issue, it may look like inspired prophecy from this vantage point in 1997. But I was guessing. In 1994, we had a list of Internet service providers that we could publish on two pages. A year and a half ago this had grown to 1,447 with the introduction of our directory. Today we are over 4,400 ISPs in the database. In the Spring of 1996 I predicted, in print and in public, 5,000 ISPs by the end of 1997. Consolidation and shakeout was predicted throughout 1996 by virtually every print publication covering the Internet with the LONE exception of ***Boardwatch Magazine***. I'm totally confident at this point that we will be at the predicted 5,000 number by the end of the year and probably plus or minus less than 50.

The number of backbones has grown from ONE to 36 in the past five years. Five years ago, it wasn't certain how, or whether, the NSFnet backbone would be "privatized" or "commercialized." We couldn't even decide on what you would call it if it happened, and the COMM-PRIV mailing list, still one of the largest on the Net, was born of the discussion. I've been following the online business, in print and every month, since March of 1987. Frankly, I don't know that the Gartner Group study is wrong. I don't know that it is right. I DO know that anyone who professes to know what is going on in THIS business five years hence and circa 2002, is officially a goddamn moron in public, and I don't personally want to even be seen, or appear to be seen, participating in the conversation. It got the Gartner Group a lot of press, and God bless 'em, every one.

Back to ISPCON. Some 116 vendors showed up to exhibit at the event. Unfortunately, at the San Francisco Hilton, they also brought some 340,000 pounds of freight with them and tried to ship it all up to the exhibit floor through the hotel's lone elevator. This didn't work very well of course and so a lot of our exhibitors, including at least one of the show's sponsors, had a horrible time loading in and setting up their exhibits. Frankly, it was a nightmare. We had a few more attendees and quite a bit more freight than we had hotel to fit it all in.

Once we greased up the last ISP and wedged him in through the door sideways, things improved markedly. We presented 186 sessions at this event, the most we have ever attempted. Prior to the show, I would look at a big magnetic session schedule board we keep here in the office and just get a chill. Clearly, I need to work on my "no" skills a bit. But the enthusiasm for this eclectic mix of what we call "stone soup" meeting and talking was overpowering. Our mission was to accommodate any kind of session that made any kind of sense. We failed of course with over 300 sessions proposed, but the 186 presented proved the concept somewhat emphatically.

Doug Humphries, founder of DIGEX, has left the company post sale to ICX and gone off to launch his own new thing. He stole the show and in fact, this guy should have his own weekly 60 minutes on prime time television. Charles Brewer and company from MindSpring were inspirational. Sky Dayton of EarthLink was there again this year.

Backbones were one of the themes. We had most of them there and some of them that weren't there were there clandestinely. MCI, who had not previously participated in an ISPCON, had a gorgeous exhibit room on the fourth floor of the hotel. By our calculation, some 40 percent of the Internet service providers in the country connect directly to MCI through at least one connection, and coincidentally, our egregiously raw traffic analysis methods would indicate they probably carry about 40 percent of the traffic on the Internet globally. So it was quite fitting that MCI showed up to acknowledge their very real relationship with these Internet service providers.

Bill Schrader, of PSInet, came to announce a profound change of heart at PSI. We found it sufficiently profound that we gave them the Boardwatch booth space in the main hall of the exhibit area (yes, we wound up with a booth in a hallway at our own show). PSI has always eschewed selling connections to Internet service providers at all. At this show, they announced a fairly attractive package to sell connections specifically to

Internet service providers, and as a counter to UUNET's "no more free ride" absurdities, actually announced a relatively free and open peering policy to all comers. PSI had recently swapped a 20 percent equity in their company to IXC in exchange for 10,000 circuit miles of OC-3 and OC-12 trunk.

Virtually all of the smaller backbones were present and we actually had to do several iterations of the "backbone operator panel" concept in sessions. Notably absent from the soirée were UUNET (God bless you, John) and Sprint. Actually both were present but in somewhat clandestine attendee form. An obviously agitated Sprintoid did buttonhole me to point out that they were mainly focused on the "business" customer and had no "excess" capacity to sell to ISPs after the fashion of MCI and PSI. I blandly asked him how the upgrade was going to the new Cisco 12000 routers and whether he thought they would have a working backbone online any time soon. You'll be pleased to learn that he thought it was going very well. And he was urgently needed in the bathroom or somewhere at about that point in the conversation . . .

The most encouraging part of the show for me personally was the attendee mix. One of my pet theories involves cultural balkanization within the various network disciplines where everybody pretty much knows what is going on within their own little pond, and nobody knows what anyone else is doing in anybody else's pond. This causes the simultaneous development of several hundred wheels each week, none particularly of a round nature. We had a lot of Internet service providers at the show, but we also had people from the pager industry, the cable industry, a lot of people from all seven (now six, now five) RBOCs, small competitive local exchange carriers (CLECs), long-distance carriers, satellite players, and on and on. I met a guy from Virginia who has operated a CLEC for years, recently hired a kid, and now offers Internet access. Two CLEC guys from Chicago are going a different route. They want to lease dial-up ports and infrastructure to ISPs. PacBell had 29 registered attendees. The mixing, cross pollination, and co-mingling of technological body fluids (figuratively speaking) had everyone juiced up pretty hot.

Hospitality suites broke out in such a big way that we lost track. Certainly over 30 of them were held. LookSmart had an off-site cigar and wine tasting that I missed. I shouldn't have done that. 3Com took a group to a brew pub. And virtually everyone had something going in the hotel officially, and on every floor there were a dozen smaller private suite parties going on almost all the time.

Yes, we did indeed give away a 1997 TurboDiesel Hummer vehicle. I drew the card myself on Saturday evening at 5:45. Steve Wilcox of Palmer Divide Communications in Monument, Colorado, won it. He and a couple of buddies drove it back the following week. We have the full story in this issue.

The industry is moving very quickly. VocalTec had a voice over IP booth at the show. I got a chill every time I walked past it. Deutsche Telecom has invested in 20 percent of this company and I hear AT&T is doing the same. I promise an editorial soon on this. For now, note that the FIRST time you see an IP voice number on a business card marks moment one in a totally chaotic frenzied revolution that will suck all communications of ALL kinds right in on top of the heads of these 4,400 Internet service providers — whether they are ready or not. Quite the contrary to the professed prophecies of the Gartner Group, the Yankee Group, the Jupiter Group and all others who will gladly provide you the future on 12 carefully photocopied pages for **$2,400**, I actually think I may indeed know what the future brings. It has me personally IN TERROR, but very excited. An odd combination of quickly developing technology, a change in regulatory climate, and a couple of very odd trick occurrences are about to trigger the biggest damn mess the world has ever seen — with Internet service providers of all sizes standing right dead center on ground zero. The only advice I can offer right now is a double negative — don't not be one.

The industry is moving sufficiently quickly that we have done a fairly dramatic thing with the show. The '98 event won't be a year from now. We have announced ISPCON SPRING '98 for March 16-19, 1998 at the Baltimore Convention Center in Baltimore, Maryland. Incredibly, the exhibit floor is already 50 percent sold, and I'm scrambling trying to get more space. So, I'm not the only one who thinks interesting things are happening centered on the Internet service provider. We think it will be bigger, better, and hopefully will have a much smoother load-in and registration process.

We are also announcing a call for papers for those who wish to propose sessions for ISPCON SPRING '98. Please address to Speaker Proposals, Boardwatch Magazine; 8500 West Bowles Ave. Suite 210; Littleton, CO 80123. Or, register online at `www.ispcon.com/speakers/callforpapers.html`. Include a proposed title, a paragraph describing the session, a bio paragraph on the presenter, and FULL contact information. These must be received by December 1, 1997 for consideration.

In any event, join us in March.

Jack Rickard

Photography by Conrad Hall

"The Hummer giveaway was indeed a hoot. No, I can't believe we did it either." — Jack Rickard

Letters to the Editor

Boardwatch Magazine
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LETTERS TO THE EDITOR

Address correspondence to Letters to the Editor, *Boardwatch Magazine*, 8500 West Bowles Ave., Suite 210, Littleton, CO 80123; by fax to (303)933-2939 or by e-mail to letters@boardwatch.com

Thoughts

Dear Jack,

First : Please contact EarthLink's creditors and let them know I could use a few million, since they seem ready, willing and able to just give it away! Second : Just a get it off my chest gripe. Your magazine, as well as almost every other Internet magazine carries hype from manufacturers touting their 56k, "Double your Internet speed", state-of-the-art, better than sliced bread modem! Well gang, let me the latest to inform you that in the real world of POTS, copper lines and 30 year old equipment you will be lucky to exceed 28k! And, if you don't believe me, how about an email from Hayes indicating just that? Third : I want to take homage with your most recent information regarding the **$19.95** a month, "I ain't makin' any money", scenario. Number one, cable companies charge an average of **$24** per month for 'basic' service. For this they pay zilch to the off-air broadcasters and only a penny or two (per subscriber) to the other services. So all in all a **$24** per month package might, might, cost them a whole dollar! And as for the phone companies, their less than **$19.95** charge to the residential users is subsidized by the business community, at least here in Florida. So the homeowner pays about **$12** per month, per line, while the business user pays in excess of **$38** per month, per line! And that doesn't even include their charges for in-house service, additional features, etc. Finally there is the small ISP, getting beat to death, charge wise, from both ends, the dial-up lines and the backbone connection! As for service, I would be willing to bet that the ISP spends as much time, or more on the phone helping users than either the cable company or the phone company. After all, how hard it is to turn on a TV or pick up a phone? Finally, Boardwatch had a letter to you regarding using a T-1 as the local, multi-line, dial-up interface for local users getting on the net. The phone company here either does not know about this, or aren't talking. So, any additional information you could offer on this would be most appreciated. Keep in mind, that I am over the hill, senile and basically stupid when it comes to Terminal Servers, Remote Access Servers, et all.

And, finally finally, keep up the absolutely great magazine. I look forward to it each month.

Best regards

Ed Whittaker

Ed:

*Stop all that thinking buddy. In the first place, EarthLink DID indeed pickup about **$15 million** in additional capital since my last publication betting that they would. So that's out of the way. Whether or not they'll send you some rather depends on your operation. This industry is moving with sufficient speed that my long-term predictions are sometimes filled while the last issue is still in the mail. This is one of those cases. I really WAS guessing. It happened already.*

Let's do 56K. We have data on 18,000 calls with an average connect speed of 43 Kbps and the most common connect speed at 44 Kbps. Those who have bought the modems love it. It may not be 56 Kbps, but it is definitely and noticeably faster than 28.8 Kbps. I DO hear this chant that 56K isn't really 56K and in the "real world" it doesn't do anything. This ALWAYS comes from ISPs who don't want to invest in digital connections and the not inconsiderable level of investment for the equipment. It is whistling in the dark. They are pronouncing a myth in the hopes that it will catch on, and no one will care about 56K. The problem is that the users do care. How will this come out in the end? 56K is happening. Get over it.

*Speaking of myths. You have thirteen or fourteen of them all garbled together. First, the telcos DO make quite a bit of money off of residential lines at the **$12** rate. They make even more on businesses at the **$35** rate. In your favor, this IS a terribly well traveled myth, but it remains one nonetheless. It was actively promoted by the telcos in a PUC presentation maneuver to justify charging businesses actually exorbitant rates. It worked. Basically, businesses have it, and the telcos wanted it, and a song had to be written to allow them to get it. They would charge residences **$35** as well if they could, but a lot of individuals would just tell them to go pound sand and do without the phone. So it's about **$14** for a residential line. And they make very good money on it. You don't even need to puzzle through piles of papers to figure this out. They spent a fortune advertising second lines to the home in the past ten years with "teen-line" offerings, "home office line" offerings and anything else they could figure anyone would need a second line for. They waived installation fees, included circulars in bills, and even did some pretty significant television advertising. It was the big growth area for local telcos and a huge profit windfall - ironically not for teenagers but specifically because of fax, modem, BBS, and Internet access. Now explain why they would so anxiously pursue second line installations over a ten year period if they were losing money on each line???*

The answer is that they never were. It was a total ruse. Residential phone service is a very profitable business. Pick up a 10Q for any RBOC. It's all there.

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lot of RG-58 coax as well. It is all too true that product support for Internet access is enormously more labor intensive, difficult, and time consuming than it is for cable or telcos. This is one of the principle themes as to why I think small ISPs do this better than large cable and telcos can do it.

*While it is an unpopular view among ISPs, the truth is that this business is famously profitable at **$19.95** per month. It has actually not only been profitable, but has funded enormous growth right out of that rate. It is certainly true that I don't know a single ISP that wouldn't just love it if everyone would go to **$30** per month or deploy metered charges for Internet access. In fact, if asked to vote, they would all vote themselves millionaires and we could all retire to a land of wishful thinking and piles of dollar bills. Some of the larger services such as UUNET and NETCOM and a few others are actually in a blue funk over this. They're sure that this all-you-can-eat pricing is holding them down, and if it weren't for all these small ISPs, who are a bunch of freeloaders anyway because they want to exchange traffic, they could charge a decent price of **$75** a month or so for Internet access, or even better, ten cents per minute, and make some REALLY big money. True enough. But it doesn't work that way. If I offer flat rate at **$19.95**, and you offer the same product at ten cents per minute, all we have accomplished is to move all of YOUR customers over to MY service and demonstrated the whole thing all over again. It's been demonstrated over and over and over. Consumers like predictable bills of known amount and are willing to pay between **$10** and **$30** per month to get it. They can do so with local telephone service, cable TV service, and indeed Internet access service. And ultimately, what they want is what the game looks like.*

Jack Rickard

◆◆◆

Boardwatch - August 1997 article

Jack:

My company, AST, is a customer of both Netcom and DNAI and to some extent a competitor as well. With that said, I can assure you that your "review" of the two firms "just ain't so" in my opinion from my experience. Your generalizations though about the problems ISPs both face and cause are right on.

Here's how I see it (and so do almost all of our business customers - past Netcom, DNAI, etc. customers).

(1) ISPs are usually "pure ISPs" and are proud of it and they promote the fact. This is a big problem since most have little or no formal computer industry education and experience. I'm not talking about someone with a paper CNE or someone who left Ascend with stock options to start an ISP business. I deal with dozens of ISPs (small to large) every month and I do an informal poll by asking a simple question - "Does anyone on your staff have a 4-yr degree or more from a major university in Computer Science or EECS?" By the way, when a LAN integration customer finds out just what the "Engineer" in CNE means after the CNE wreaked havoc on their network, they go ballistic. What does Electrical Engineer, or Mechanical Engineer, or Civil Engineer mean to you? What do you expect of someone who holds themselves out to be an engineer?

(2) ISPs never intended on engaging in a "business-to-business" relationship. I call this the Costco or Home Depot effect. Most were pure IPO plays or were lured by the thought of a "vending machine" business. By the way, the state of the union is orders of magnitude better today than it was two year ago. As you point out, most ISPs ignored or were not aware of the section on an income statement called "G&A" expenses. Also, they do not understand that customers are at the same time both an asset and a liability.

(3) ISPs continue to oversell and misrepresent almost everything. The "no AOL after 4pm" problem lead to numerous class action lawsuits. The marketing hype that my customers receive daily from dozens of ISPs - "everyone else is a crook; we are the only ones who know what we are doing; we have been in the Internet business for 20 years; we have a multi-homed, fully redundant, fully meshed, T-something, D-something connection" both unnecessarily frightens and paralyzes the end-user community. A useful benchmark that Boardwatch ought to develop and use to rate ISPs (and customers should demand) is the ratio of existing customer bandwidth potential demand to existing available ISP bandwidth. The fact that DNAI for example (I only mention them as an example, they are a good ISP as ISPs go) knows full well that the probability is high, that at any given time their prospects, if converted to customers, will experience any number of problems such as busy signals is actionable. How can you sell something that you know you can't deliver??? It's like Toshiba offering a notebook warranty that takes and then takes six weeks to repair, or Dell guaranteeing next day on-site service, but the small print says they can pay **$15** to get off the hook.

I could go on, but I am sure I am not telling you anything you don't already know.

The Netcoms and the DNAIs are our best salespeople. Without them, AST would have far fewer customers and the ones we have would cost much more to attract and retain. I hope they keep up the good work.

One last thing. I showed your article to a few customers of mine. They all asked about your relationship with DNAI. How shall I respond?

As always, feel free to call/email/fax if you have questions or comments. ***Boardwatch*** is very useful to AST.

Jack Sauder

Jack

You are entitled to your opinion, of course. I'd be interested to know what, in particular, you believe "ain't so" in my comparison of the two.

My own experience has been that, while an EECS is quite useful, a CS degree is practically worthless from a standpoint of designing, maintaining and supporting complex network systems. There is NO substitute for experience in this regard (although experience, in and of itself, is insufficient, unless accompanied by a useful measure of "clue"). Do many ISPs suffer from a chronic shortness of expertise? Uh-huh, yup, sure do. The fact is, however, that the entire computer industry and the American business community in general, suffers from a chronic shortage of technical expertise.

As for the shortcomings of the CNE program—you're preaching to the choir, Jack. My first published piece in the computer trade press was a January, 1994 guest editorial in LAN Times magazine entitled, "Help Wanted, CNE: No Experience Necessary". But, let's not pretend that Novell is the only offender here. Microsoft and Banyan have similar, equally-misleading "certification" programs, NONE of which require demonstrated, hands-on, real-world expertise..

I'm not big on sweeping generalizations. Especially given the quantity and quality of business sense I encountered at ISPCON 97, (which ended yesterday,) I think you're just plain wrong on the

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"COSTCO effect". I do agree that the business market awareness has risen over the past year or two..but so has the sheer number of ISPs as well as the number who have failed for lack of a defensible business plan or of adequate financing.

"The ratio of existing customer bandwidth potential demand to existing available ISP bandwidth" sounds good and is, essentially meaningless and, worse still, misleading.

The nature of network traffic is bursty. That's why Ethernet works, despite IBM's promulgation of FUD about "unreliable networking protocols" (in my personal experience, mind you) as recently as 1992. Much more useful metrics are such meat-and-potatoes questions as: "How many dial-up attempts result in busy signals (or RNAs or other failed connects)?" "At peak usage periods, what's the throughput on sessions with hosts on other networks that are not themselves either overburdened or bandwidth-constrained?" "Is tech support knowledgeable, patient and available?" And the plain fact is that, almost universally, these metrics are all moving targets.

That's the Dirty Little Secret of ISPs. Quality of service varies as a sine wave over time. QoS on a newly-expanded-and-debugged system with a growing subscriber base will be great . . . until the growth in demand catches up with it. The difference between good ISPs and bad ISPs is that bad ones wait until the impacts become significant before upgrading, while the good ones watch the trend and expand their capacity before QoS becomes unacceptable. Really, really good, business-customer-oriented ISPs expand capacity when peak-time average demand exceeds some fairly low percentage of available maximum bandwidth. And they charge for it, too.

Bottom-feeding, compete-on-price types can't do that, so their customers get congestion as a trade-off for low rates.

Getting back to your observation about DNAI, I suspect that they know full well what proportion of their "prospects" will become customers (I don't know for sure, because I'm not privy to their internal marketing and account tracking practices—it's not like I'm an insider or anything). I do know that they have, in my more than two-year history of my using them as my preferred provider, a consistent practice of responding to congestion with system upgrades in a pretty timely fashion — unlike Netcom..

To quote your own criticism of industry marketing hype from a paragraph or so ago, "everyone else is a crook; we are the only ones who know what we are doing," etc., etc., yada-yada.

Ulch. That meat was tainted.

I've been a DNAI customer since June, 1995. Although my DNAI account is complimentary, I have no business affiliation with them, other than the fact that my web site runs on their server (and I paid them the standard setup fee when I switched it from the user-directory address that is included with all their accounts to the starkrealities.com address that runs as a separate instance of their Apache server—exactly the same one-time charge all their users who have chosen to set up virtual domains are required to pay). I own no stock or partnership interest in DNAI, have no influence over or inside information about their company management and am and have always been perfectly willing to criticize them when I think they deserve it.

Regards,

Thom Stark

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ISP Directory July/August

Hi, I'd like to congratulate you on your latest directory with the amazing new throughput charts on all the backbone providers. It's a big advance. Please update those with each issue, as performance will no doubt fluctuate.

I hope you'll be able to supply a two-month period of data for each of your bimonthly issues. Also, perhaps a cumulative chart of sorts for a longer period, to even out a "bad month" for a provider.

Your average 50K download time and Standard Deviation are good measures, but how about combining them into a single measure for ranking purposes? The lowest average access time may not be the best deal if it has a much larger SD than another. KEEP the average and SD figures, but what about using them for a statistic such as "75% (median is more useful than mean I think) of the time the 50K file will download in x seconds, but 5% of the time it will take y seconds." The 75% and 95% points will bring in the importance of the SD and most of us probably remember our ISPs by that 95th percentile performance, not when things are going smoothly.

MY MAIN REASON FOR WRITING: I think you've made one boo-boo in your new organization. It's fine that you've pulled out the National ISPs into a separate section, and the maps are a nice touch, but there is no longer any information on the national ISP's backbones! EarthLink for instance uses UUNET and PSI-NET, but I can no longer tell that. Please add that information back in; a lot of my criteria for an ISP is its backbone provider(s).

P.S. Please remove `www.ie3.net`. They're defunct. I belonged to them about 6 months ago. They promised free Internet if you subscribed to their long-distance plan. Then they went south. There is no domain left, no nothing. I think Frontier Networks was left holding their long distance bills because they never even billed my wife or I for 3 months of long distance. And their Internet sucked; busy signals most of the time.

X2 — Very important to me to know who offers X2, please keep that updated in future issues..

Thanks for your directory, it's the best consumer item I've seen in years.

Curtis:

Thanks for the suggestions. We're implementing some of them. I simply didn't notice that we left backbone provider out of national dial-up service providers. As to average and standard deviation, I think of them as two different things. But it might be possible to derive a merit figure such as you suggest. We'll look at it.

Regards;

Jack Rickard

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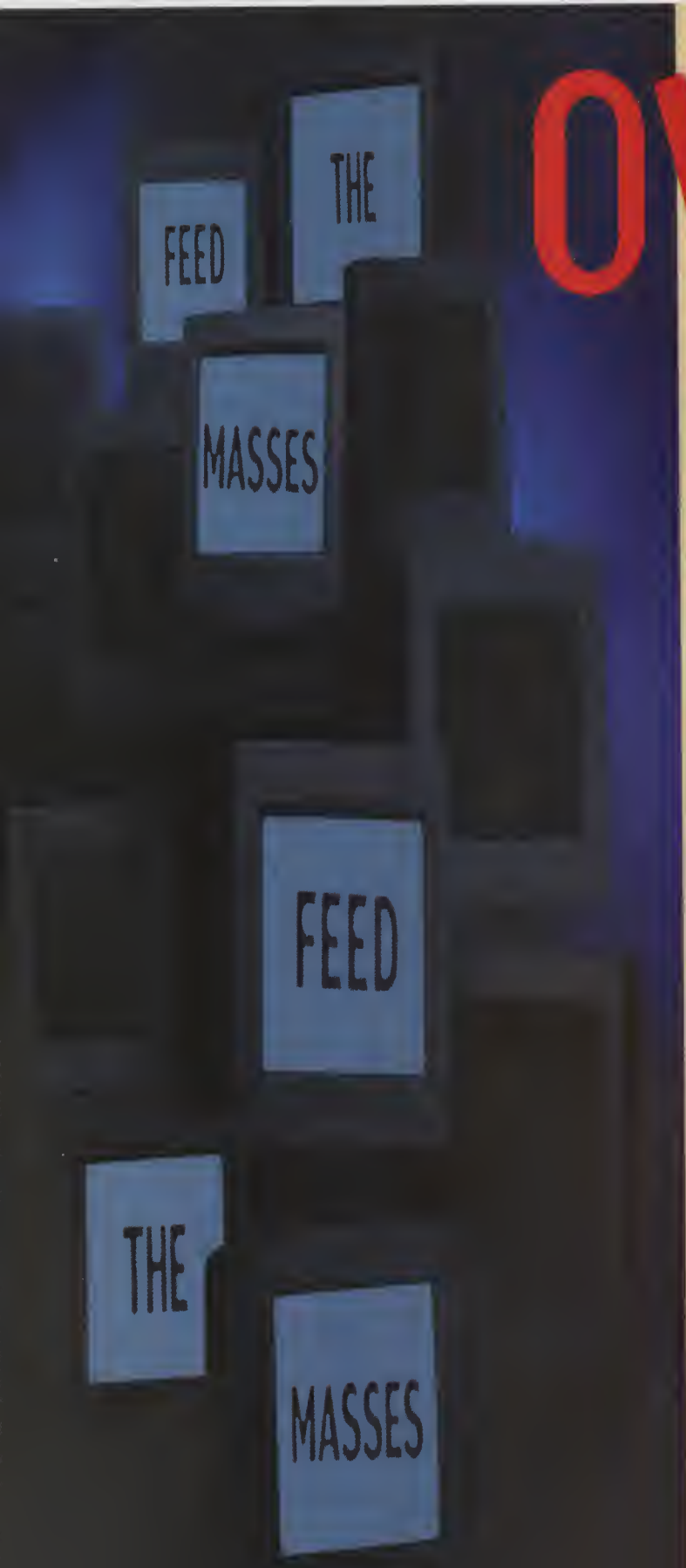
Best of the Internet (7/97)

Jack! Tell us it ain't so!

More and more, as we shop for additional bandwidth to the Net, we are being told by the unwitting victims of ***Boardwatch's*** review of the top ISPs that "the report is flawed." "There are errors." "They inadvertently connected to the wrong site."

True?

While I use such reports as a guideline, not as the total reason to choose or not choose a backbone provider, I can't help but be swayed by widely divergent results. Impressive!



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Are you standing behind this report or are you having second thoughts about its validity?

(I certainly hope the former)

Tony Elliott
VP
SoVerNet, Inc.

Tony:

The problem with a comparative study is that you can have about ONE winner and a whole bunch of losers. No, it isn't true. The study is superb. We love it. No one has come up with any substantive criticisms of it other than that they wish we hadn't done it and some yatta yatta they hope might confuse the issue.

We are standing behind it, expanding it, doing it again, adding customer satisfaction surveys, etc. It has been the most successful and popular thing we've ever published. I actually WAS terrified that we would miss something obvious, always a danger in publishing such work. There have been enormous howls of rage from these networks, but nothing substantive and in many cases nothing rational beyond that we are costing them sales.

I hope all of them sell well and do well. But the study is quite solid, we're going to do it again, and the numbers are the numbers. We didn't connect to the wrong site. There were no substantive errors. The report is not flawed. But if you're trying to sell Internet services, and you're not number one, about all you can do is vaguely allude to casting aspersions on the study and hope the buyer can't tell the difference.

In this case, spewing forth technobabble probably isn't going to confuse anyone. The graphs and numbers were as clear as I can make them, and I don't think anyone on the buying end will be confused — despite all protestations from those whose ox got gored..

Jack Rickard

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Internet in Venezuela Date: Thursday

I live in Venezuela and have been reading your magazine for the past 14 months, now its time for subscribe, I pay here for your mag $14,32 for each one.

I have worked one year in ISP business with Netpoint as the sales manager inside the country, but now I am starting my own business as ISP, you should know how hard is that here.

But I am writing this to say that this magazine is one of the best products ever made on the computer industry, I know is hard, but think in all the people like me that are more rich in knowledge because you and your folks do the things right.

Sincerely, congratulations a keep going forward.

Andrés Méndez

Thanks Andres.

It is a hard day's work. But it is worthwhile. I've found those two elements curiously related. Hard is good. Easy is usually bad or of little worth.

Very pleased you found the magazine of use in Venezuala. I know the environment is quite a bit different there, but I'm certain you'll find good fields to plow in bringing Internet access to your area.

Jack Rickard

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Non-renewal

Dear Jack:

I have been a subscriber for a couple of years now (who's counting?) and believe your magazine is a beacon in a giant fog of ignorance and commercialism. Your writing style and personal integrity appeal to an old timer like me. Nowhere else is there a certifiable genius with a solid grounding in old-fashioned common sense. In short, You sir are a God! Well maybe I gush too much, but sincere congratulations and continued good luck.

But I didn't waste my time and yours only to pat you on the back; I just thought you deserved an explanation for my not re-subscribing. Way back, when the Internet was an unknown to the WOW!, GEE WIZZ! journalists and BBSes were the way to get software and information, I would pick up ***Boardwatch*** at the local news stand. Then the mainstream hacks started picking up on the "Information Superhighway", etc. . ., etc.. So one day in a fit of anguish over all the "me too 'ism" I sent my pound of flesh to you and awaited my first issue. Well, my uppers almost dropped out when the first issue arrived — this wasn't about BBSes, it too was more about the Internet. After a while you answered your critics about why Boardwatch was changing focus and it made good sense to me, as always. So, I came around and jumped on the Net (since it really did have more content than any BBS) and now I'm addicted. However I doubt that my uses are anything like the average user. I've never been to a chat room or used a news reader and have no intention of changing. The typical use for me is to find information and download software.

Now it seems that you have recently (?) drifted toward only information from the standpoint of ISPs which appeals to me not a bit. So from here on I'll just check out your web site for your latest editorials, which are the most rational, factual and practical I've read in any publication on any subject.

Again, the best of luck swimming upstream against the tide of bullshit. Go get 'em, Jack.

Regards:

Fred Romig
`fromig@mindspring.com`

Fred:

Thanks for writing, and I understand completely. As technologies and industries evolve, we have to set our sites on what and where we want to be in the scope of things. We've focused pretty narrowly on what we think of as the center of the network. I personally don't think you need much of a magazine for finding interesting things on the network. It's all interesting, and I myself can click that little mouse all afternoon with nary a printed page to guide my hand. So we've rather left the "Internet is Cool" work to other publications, and any number are covering it probably beyond what needs to be covered.

That said, at the center of this is an industry of real people with real businesses, real opportunities, and real problems that make all the clocks go tick tock. We've focused on them. The price is that not everyone who has been a faithful reader over the years really needs to know the intricacies of BGP route advertisements, which 56K is going to win, or which backbone returns the best measurement of a web site, or how to deal with spam. I really do wish I could devise a publication to be all things to all people, but I'm not smart enough, not working hard enough, or something to pull it off.

We recognized that early on. ***Boardwatch Magazine*** *has been online in full text version since January 1988 — a lifetime*

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Meanwhile, be well. It's been a long time coming to build a network where readers such as yourself don't need me anymore. And I personally celebrate the fact that we've gotten there.

Regards;

Jack Rickard

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Clark Dev Requiem?

Hello Jack,

Yes, I'm still running a non-Internet BBS, and yup, I was one of the many that ran Clark Development's PCBoard software. As you are probably aware Clark was closed in May by the bank with very little notice. They were in the final days of a beta when the plug got pulled and subsequent (and infrequent) messages seemed to indicate that while the hardware was part of the asset auction held in yearly June, the source code to PCBoard/Meta World wasn't. Messages posted by a couple former employees said that they were purchasing the rights to the code and were going to regroup and resurface as a new company. Unfortuneatly, that information was posted in early July, and nothing has been heard since.

As BBS'ing used to be the mainstay of Board Watch, and Clark Dev was one of the big three players in this market, could you please shed some "offical" light on just what happened as well as the current status. There is just too much rumour and no information from reputable sources.

Is PCBoard dead or is there some hope to those of us that are still using the software?

Mark Collis
mark_collis@dofasco.ca

Mark:

I have no close contacts with any of the Clark team. I used to be on pretty good terms with David, but I just have no source for this story. Unfortunately, when companies go down, the parties are often bitter and disillusioned and rarely have an urge to trot out the post mortem for editors and press.

Along the trail of technological innovation, a lot of pioneers can be found with arrows in their backs. It goes with...

Regards;

Jack Rickard

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ISPCon

Jack, For me words cannot completely describe the experience of attending ISPCON 97. Outside of not winning the Hummer :(, the total experience was fantastic. I was impressed by the quality of speakers, engineers and staff. I learned more about being an ISP in four days than I have in the last year on my own. I hope to attend the next conference in March. Besides all the knowledge, I came away with enough T-shirts to open a side business :) I also won a really neat Palm Pilot Organizer from the Netopia folks.

Thank you for a great 4 days.

Sincerly
Bill Devine
HKAN ONLINE SERVICES

P.S. I am really depressed about not winning the Hummer. Wouldn't it be nice to make the Hummer prize synonomous with ISPCON.

Bill:

We were very pleased you joined us in San Francisco, and I'm delighted to learn you'll be back in March in Baltimore. The Hummer giveaway was indeed a hoot. No, I can't believe we did it either.

I guess we could do it again. That would be easier than coming up with something to top it, which is what I face at the moment.

See you in the Spring.

Regards;

Jack Rickard

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Serial Killer and Performance Metrics

Jack,

Your editor's note, "Serial Killer and Performance Metrics" is an island of wisdom in a sea of madness. We at Electric Lightwave, Inc. (ELI) have been quietly building a premium Internet network that offers what you describe as "much better performance and connectivity by not appearing at any of the official Network Access Points." ELI's Internet network is based on fiber optic local transport, our own telco facilities, a "private NAP" architecture, and purposeful avoidance of public NAPs.

Our NAP-free network design has, to use your words, "sounded like madness" to our critics, and our true network performance has remained shrouded by pro-public-NAP doctrine.

ELI applauds your Internet Performance Comparison which calls Internet backbone providers' hands in what you aptly describe as a "gigantic game of liar's poker." You have done the Internet community a great service by taking a first step toward what we hope will evolve into the industry cooperative testing standard you envision.

Prior to your note and published test results (for which our network served as two reference points), we could only argue that the ELI Internet Network strategy results in premium network performance. We can now point to your Internet network comparison methodology and results as initial validation of our network strategy.

Thank you for supporting Internet network backbone providers like ELI that closely identify with your description of

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Sincerely,

Dave Gilberts
Internet Product Manager
Electric Lightwave, Inc.
david_gilberts@eli.net

Dave:

"If you can do it, it ain't braggin." I'm guessing Yogi Berra.

The problem with the status quo was that if you could do it, no one would know it or be able to prove it. We hope to change that. It's a cajone shriveling task. But we're after it.

I'm increasingly suspicious of the current NAP architecture.

Jack Rickard

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INTERESTING SPAM STORY

Dear Jack,

As we all know spam is ridiculously out of control. I get around 200 of them a day. Today I did something about it. I setup a cron job to email the spammed message back to the sender 4 times a hour. No big deal, but I wanted to see if I could eventually fill up their mailbox. Well it turns out the mailbox was an autoresponder that send out a 50K message with more info. At the bottom I found a 1-800 number, so I called it and just left it on speaker-hold. The people on the other end were getting furious.

They were screaming that I was interrupting a business, they were tracing the call, they were going to press legal action, and called me all kinds of names. I finally got them to listen to me and asked them if they thought their spam was in anyway interrupting my business, at which point they started calling me names again and threatening to sue me.

Wouldn't it make a great court case where the poor local ISP is getting sued because he chewed up 15 minutes of 1-800 time from a company "Cyber Promotions" that everyday is costing ISPs and other businesses thousands and thousands of dollars with UCE?

It almost makes me want to press the issue.

Mury
mury@goldengate.net

Mury:

My only regret in publishing this letter is you failed to include the 800 number. Sounds like a case of what's good for the goose is good for the gander.

I still don't quite know how to manage this spam thing. I don't get 200 a day, but I'm getting enough that I really can't deal with it — probably 90 or so. I know replying isn't the answer. That's what's driving it. I only recently learned that it originally came from SHOULDER PORK AND HAM. Most of my discussions with ISPs have actually not been useful. They don't even agree on what spam is or how to define it and their main tactic to control it is to beat up on each other. You would think Phil Lawlor invented it. I'm as disgusted with their endless testosterone-induced but nonetheless unproductive conversation about it as I am with the spam.

I guess I think without a solution from within the community, we will be saddled with a legislative solution — probably something countenanced by the National Association of Dry Cleaners or some other group capable of organizing themselves into a party of greater than 80. Since inevitably, this leads back to ISP responsibility for implementation, I shudder to think.

That said, since you get some 200 per day, you may be an expert. Tell me, COULD I actually make a million dollars a month from home in my spare time without doing any work at all???

Jack Rickard

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K56FLEX, NET.MEDIC, AND XDSL

Dear Jack,

As an ISP, I want to thank you for a valuable magazine — it has both saved and made us money. As a businessman, what higher praise can I give?

We run an Ascend Max TNT box with K56flex support. In the past few weeks it has come to my attention that there are at least two series of the Rockwell K56flex chips, R675.. and R676... These chips are not equal in performance when connected to the Max TNT. The R6751-23 barely gets 34,000 baud (if it connects at all) while the R6761-23 clocks in at 44,000-51,000 with no problems. The average is around 48,000.

The difference between the chips appears to be in the datapump. The control coding for the R6751-23 is in ROM while the R6761-23 is coded in RAM. Modems with the older chip also appear to use a different tonal sequence when connecting (or trying to connect).

The brand name companies we've contacted are providing free replacement modems to customers with the older chipset. However, many of the K56flex modems on retailer's shelves are using the older chip, so buyers need to be cautious and should have the retailer verify the chip series before purchasing the modem.

On another topic, Net.Medic, I ran the following test. I dialed-in through the Ascend Max TNT in the middle of the night when things were very slow on a computer with Net.Medic. On another computer hooked directly to the network I ran a second copy of Net.Medic. Next I reset all of my Cisco router's counters and attached a network analyzer just ahead of the Cisco router.

After a few minutes, the Net.Medic program on the dial-in was indicating the Cisco router was overloaded and dropping packets as a customer had reported to me. However, Net.Medic on the network was giving the Cisco router all green lights. The network analyzer indicated that the line was perfectly clean and functioning properly. The Cisco router indicated it was only working at 8% of capacity and its average queue length was so close to zero it might as well have been. I don't know how Net.Medic works, but it's reports seem to me to be mostly fantasy. I was sorry to seen an article in your magazine recommending it.

And on a last topic, we have just started offering IDSL and SDSL. While we are in GTE's realm, an area we were considering expanding into is controlled by US West. I've been quite interested in your reports on US West's attempt to remove tariffs on dark copper pairs. How did the Colorado utility commission decide the issue?

Best regards,

Tony Ray
Moscow, Idaho.

Tony:

You can give no higher praise. But you did something better with useful information regarding the K56flex thing. Most of the ISPs that have committed to this have been a little mum about the problems, I think hoping day to day they would be fixed.

Rockwell did do FOUR versions of the chip. Two for central site equipment and

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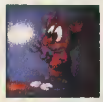

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two for modems. They did both an upgradable (RAM) and non-upgradable (ROM) version. I'm told that they could get the non-upgrade out quickest, but I'm also told they really didn't want to give up the monolithic chip set concept as their business model rather depends on us all buying new chips every couple of years.

In any event, your information tends to support the conflicting information we are getting that 1. It works great; 2. It doesn't work so good 3. It won't even connect. I've delayed this story and really REALLY have to finally do it.

Your Net.Medic tests tend to confirm my own. But try a later version. It does get better. Not enough better yet, but better. VitalSigns has decided to publish data on how it works and to put out a Net.Medic Professional version that you may like. And they have more in the works. The concept is essentially sound. It was a very popular download and I got a little excited initially. The initial code sucks and VitalSigns rather readily acknowledges they blew the launch with ISPs coming out the gate. Give 'em a call and tell them what WOULD be helpful.

***Boardwatch** did file a motion to intervene in the matter of US West removing the LAD circuit tariffs. This has been set for public hearing and the biggest accomplishment there is that you can still get them. In filing to remove them, they could discontinue offering them. In intervening and driving this to a public hearing, we reversed this so the circuits must be offered in the interim. So we did accomplish that. MCI and two Colorado Internet service providers have joined us in this. My sense is that the momentum is going our way. But it is difficult to predict the final outcome. Since US West has already slimed this past the PUCs in several other states, it's a little awkward for them to reverse their position in Colorado. But my sense is that they don't really want to slug it out in public over the few circuits involved. I'm obviously most happy to. I think the next administrative hearing is in October. Please call Todd Erickson here at our office and he'll be happy to get you up to speed and involved. I'm not above piling on with warm bodies and loud voices if that's what it takes to win.*

If it helps, I can tell you that the National Economic Council called from the White House to express support and interest in this as a specific example of anti-competitive behavior on the part of a regional telephone company. I may have accidentally failed to mention this ongoing monitoring to US West directly, but my memory is unreliable on good days and I haven't been having a lot of good days. It is kind of one of those situations where if they lose, they lose, and if they win, they lose bigger than if they just lost and forgot it. Trust me, when I was younger and prettier, I was also a lot nicer and not nearly so vindictive. I don't know. Maybe it's the extra weight I'm carrying these days.

I try to avoid direct contact with these legal things. But in this instance, we have strong reason to believe our March 1997 editorial actually triggered the tariff revision filing. If I wrote some Colorado ISPs out of some LAD circuits, I am probably obligated to get them back one way or another. Might be an easy way. Might be hard. I probably don't care at this point.

Jack Rickard

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HELP

Dear Jack,

Once again I am in need of your clairvoyance. I received a call from one of my customers the other day telling me that the local cable company will begin providing Internet access via cable modems in the first quarter of 1998, and that they (the customer) will be changing to the cable company for their Internet access at that time, obviously I am concerned over this development, the thought of trying to compete with a company like Time/Warner sends shivers down my back. What effect will competition from the cable companies have on the average ISP and how can we hope to compete?

Thanks for your guidance through the years...

Kevin Johnson
`kjohnson@kc1.net`

Kevin:

In a 1988 editorial I noted that the only way we would get fiber to the home is on the back of video. At that time, the telcos were very imminently about to deploy fiber, which they didn't of course. But there was a great hue and cry from the then tiny data community for fiber to the home to carry data.

Little has changed actually. I did for some time in the early '90s think that cable was a ripe channel for data. We finally got cable in an area and I was struck by the high-quality coaxial cable they were using to wire the neighborhood — far beyond what was required to deliver a video signal. But I guess the real costs of laying cable are more in the laying than in the cable, so it pays to lay out good stuff that will last for 20 or 30 years.

In any event, it didn't turn out to be so. The cable industry is replete with a bunch of yahoo cowboys who know how to "wire that sucker" to a sufficient degree that all the amplifiers in most systems are horribly misaligned and oddly unidirectional. The amplifiers weren't actually designed that way, but they have been installed and tuned in a manner leaving them so. Further, for whatever reason, we find RG-58 environments of any span unexpectedly noisy and not a good environment for data — surprisingly, but also dramatically so.

The cable industry has been threatening to take over the Internet world for sometime. I can only imagine it will happen if the Internet becomes primarily press release powered. I have chased announcement after announcement down to a by now predictable group of 150 homes, and incredibly, in each case they have been rewired with fiber — not coax. The cable industry's enormous advantage, an installed network of RG-58, appears to

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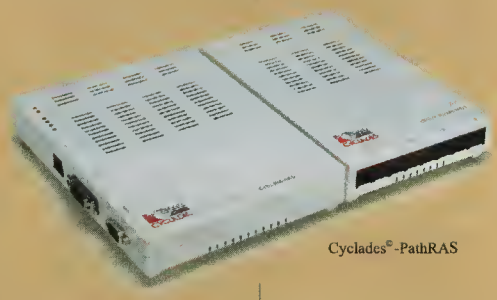

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be not usable. And so their pilot programs are largely limited to fiber optic cable systems.

It is true that @Home had a stunning initial public offering. I don't know what happened then, but an important segment of their technical elite immediately left the company a few weeks afterward. We are hearing of some significant developments in Canada actually, where metropolitan areas are indeed networked with fiber, and consequently, Internet access is being offered over these systems and at impressive performance. But we still seem to have a lot of ISPs in Canada, so even there it doesn't appear to be a death warrant for ISPs.

In the U.S., the cable industry is saddled with enormous debt from laying cable and then buying each other. I don't see the financial horsepower to go do it all over again with fiber. And I don't see it happening usefully over coax.

All that said, the factor limiting cable companies is cultural, not technical. Technical problems can be overcome with cash and management. Cultural problems are sufficiently visceral that they tend to define industries rather than change them. Customer service for a cable company is planting pins in a curled paper map as angry customer calls come in. After a couple of hours, they can usually look at the map and detect that there is indeed a problem and what amplifier is causing it. The concept that they could erect a customer service group to walk people through Windows configuration is actually charming and entertaining. It would at least give me a place to call about my television. But it is unlikely.

Cable appears to be one of those looming giants that has loomed for nearly three years now and will likely "loom" for another three or four. I don't expect they will either disappear from the horizon from which they loom, nor loom any closer. They will just loom.

In selected markets, they may do some service offerings and generate some press and excitement. Competing with Time Warner sends a chill down your back? If you can't compete with Time Warner, you can't compete with anybody. Behemoths like this spend your annual budget just in having MEETINGS about your market. Their movements can be timed with a stop-calendar, if you have a large one. You could change your entire business six times in the same period they will render reports on the topic of the Internet market. And while you quake, a small ISP three miles down the road from you, that doesn't know enough to fear Time/Warner, will lure all your customers away. HE you should fear.

Roy Dimhoff of Rocky Mountain Internet is one of my favorite ISP CEOs. This largely because he used to be one of the movers at a company called CONFERTECH. Confertech spent about a zillion years in the voice conferencing business making AT&T look big, dumb, slow, and stupid. They made it more sport than business. Roy is kind of charming now in that he's one of the few people in the Internet access business that doesn't try to convince me he invented it. After a couple of years and 3,000 questions, he still doesn't think he knows anything — but he keeps trying. I'm sure Roy has a lot of problems to deal with in the Internet business — some days are better than others for all of us. But fear of kicking ass among large companies isn't any of them. If Time/Warner was his only problem, he could probably win by just showing them the t-shirt from his last job.

But you wanted advice. This is a boutique business with a death-defying technology roller coaster thrilling us all. Customer service is of course the obvious answer. But it's almost a full-time job keeping up with the learning curve of what's new, what's better, what's faster, what customers need and want, what's cheaper, and how to install and configure it all. ISPs that keep up with that learning curve and master the technology, and are willing to share that expertise with their customer base, have nothing to fear from Time Warner or other such players. And you will see a LOT of segmentation of Internet access among not only cable, but satellite delivery, wireless, PCS telephone, and more. It doesn't mean the end of your business. It may mean the start of a new one, but it simply isn't a zero sum game.

Jack Rickard

◆◆◆

Yer Magazine

Hello Mr. Rickard! Just wanted to tell you what a fine job you're doing there at ***Boardwatch.*** I'm not an ISP or anything, just a dial-up consumer (Mindspring). I've gotten more great info from your mag than from a ton of those other "happy-talk" rags. I read it cover to cover every month and one of the high points is the Editor's Notes! I must say sir, I like your style! Keep up the good work.

Paul Miknavich
`cc002050@mindspring.com`

Paul:

OK, but it IS technically a secret. Please don't mention to anyone that you are reading it or that there is anything useful in it. In other words, you can come into the fort, but DON'T BRING GIRLS!!!

I keep my copy under the bed.

Jack Rickard

PS. We're happy — damn it. Well..., happy enough....

◆◆◆

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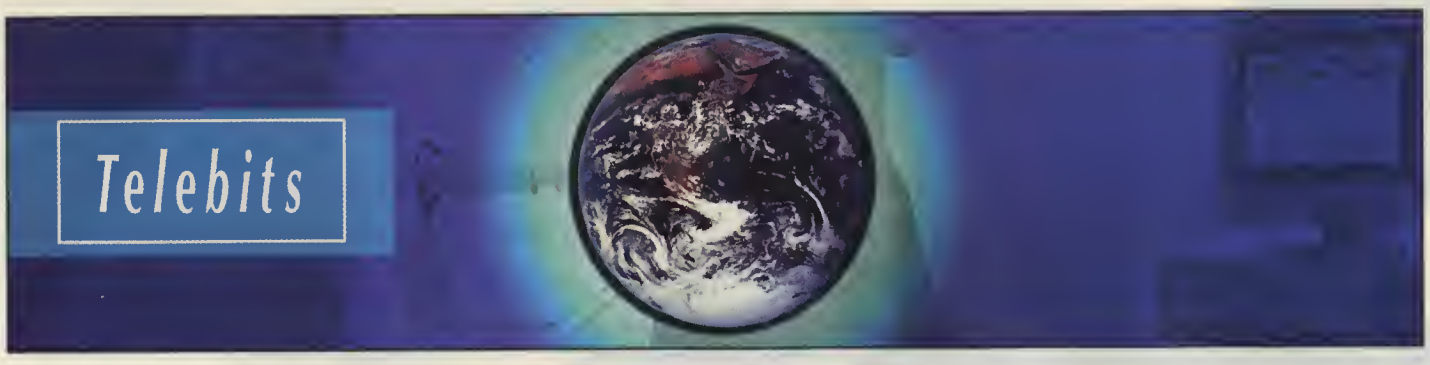


OPEN CALL FOR SPEAKERS FOR ISPCON '98

One Inc, promoter of ISPCON, is issuing an open call for speakers for ISPCON SPRING '98. Potential speakers can drop off their biographies and proposals online at `www.ispcon.com/speakers/callforpapers.html`.

A proposal should have a title, be no longer than 100 words, written in the third person and in the present tense. If accepted, it will be printed in the show guide.

Speakers should include a biography and complete contact information. The bio should be no longer than 200 words. In the following order, it should describe: the speaker's current position and/or projects, the speaker's prior positions and/or achievements, and the speaker's education. Contact information should include the speaker's full name, title, company, mailing address, telephone number, fax number, e-mail address, and URL.

Proposals and biographies should be buzzword free. For a current style guide, consult ***Boardwatch Magazine's*** online style sheet at `www.boardwatch.com/style.htm`. Deadline for proposals is December 1, 1997.

ISPCON SPRING '98 will be March 16-19, 1998 at the Baltimore Convention Center.

KEVIN & KELL GOES DAILY TO SUBSCRIBERS

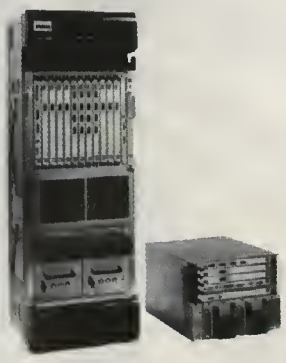
Two years after its debut as an online, syndicated comic strip, Kevin & Kell is now available to individual subscribers. Each weekday, a new adventure will be e-mailed to subscribers. Subscribers will receive 260 strips for an annual fee of **$20**.

Kevin & Kell has enjoyed a loyal fan base. Upon being introduced in September 1995, it was immediately snatched-up by over 50 web sites and online forums looking to attract new traffic and daily readers. One web host, The Business Basic site (www.gdma.com/kk), reports over 1,000 hits per strip. The strip appears daily in CompuServe's Funnies Forum and monthly in ***Boardwatch.***

So far, merchandising for the comic strip includes a screen saver, tee shirts, coffee mugs and mouse pads. In addition to Kevin & Kell, Bill Holbrook is also the creator of "On the Fastrack" and "Safe Havens," two comic strips syndicated in print newspapers.

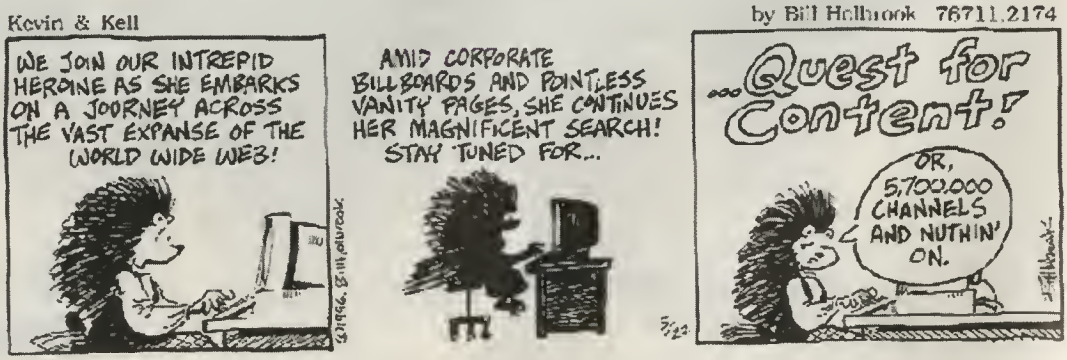
To sign up, send a check, made out to Bill Holbrook, to 846 South Arlington; Tucker, GA; 30084. Please make sure you include your e-mail address. Visa, MasterCard or American Express orders are also accepted by calling Pratt Hobbies at 703-689-3541.

SPRINT USES CISCO 12000 ROUTERS FOR ITS OC-12 NETWORK



Sprint has deployed Cisco's new high-speed model 12000 gigabit switch routers on its 622 Mbps OC-12 national backbone. The OC-12 backbone had been stifled by switches that were only designed to handle OC-3 (155 Mbps). Sprint says it will "aggressively deploy" the 12000 series routers throughout this year and 1998.

The Cisco 12000 GSR is a 12-slot switching router that will support OC-48 (2.4 Gbps). Single-port OC-12 line cards cost **$25,000,** and four-port OC-3 cards cost **$37,000**. Extensive information is available at `www.cisco.com`.



PSINET TO OFFER FREE PEERING

PSINet has traded a 20 percent stake to IXC Communications in exchange for 20 years of network services. IXC is building a 10,000 mile, OC-48 network to which PSINet will have "indefeasible" rights. As part of the agreement, if IXC's 20 percent stake is not worth **$240 million** one year after delivery of the full bandwidth, then PSINet will have to make up the difference with either cash or stock. This gives PSINet four years to grow to a **$1.2 billion** company, since the network should be completed within three years. However, since PSINet's stock value was only **$321 million** when the deal went down, it will have to grow by 38 percent for each of the next four years.

At ISPCON in San Francisco, PSINet President Bill Schrader also announced that it would peer with any ISP for free. The ISP would have to establish its own connection to one of PSI's 350 dial-up POPs or 45 DS-3 POPs.

In company statements that followed, PSINet took indirect jabs at UUNET for its decision to charge for peering rights. "PSINet is interested in preserving the future of the Internet," Schrader said in a statement. "Telecommunication carriers appear to be tightening the reins on small ISPs." The company hopes that by providing free peering to up and coming ISPs that it will be able to retain them as transit customers in the future.

BAY NETWORKS UNVEILS NAUTICA 200

Bay Networks has introduced the Nautica 200 ISDN terminal adapter for small and home offices. The Nautica 200 is a full feature ISDN adapter, router, 10BaseT interface, and POTS connections. It is available with a U or S/T interface and supports IP, PPP, MP, BACP, and STAC/MPPC.

Its two POTS interfaces can be used for fax or telephone. The Nautica 200's ISDN data connection automatically activates itself when data is transmitted or received, which saves on telco line costs. The device has a list price of **$595**. Bay Networks' web site is at `www.baynetworks.com`.

OMNITREE OFFERS HARDWARE DATABASE ONLINE

Go to `www.omnitree.com` for a comprehensive and updated hardware database. It is a site dedicated to technicians and lists drivers, as well as technical references, product information, and utilities.

OmniTree

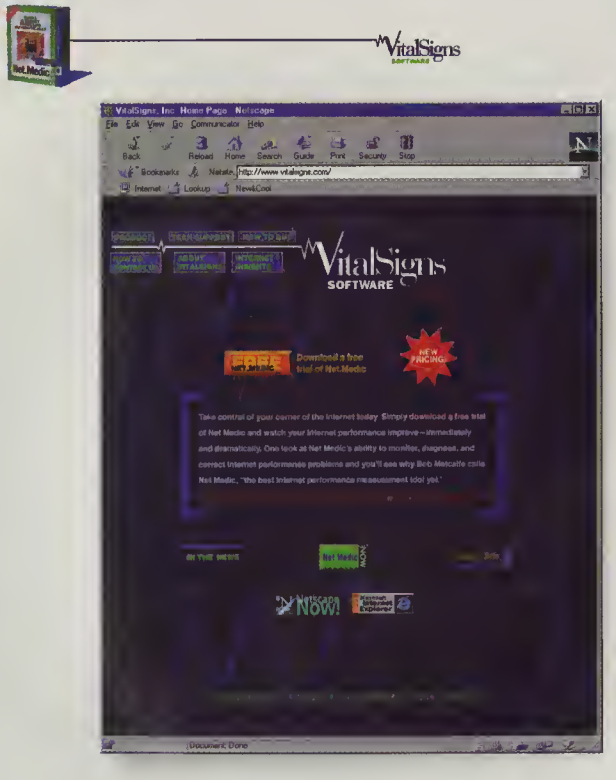
It uses a hierarchal tree structure to list its 33,000+ links. All links are updated 24 hours a day. Currently, about 400 hardware vendors are listed at OmniTree.

NETSCAPE BUNDLES NET.MEDIC

Netscape will include Net.Medic SE in the Deluxe Edition of its Communicator software. Net.Medic is an Internet measurement tool that allows end-users to measure Internet performance.

Net.Medic CE allows users to monitor, diagnose and correct the performance of their Internet connections. Netscape Communicator Deluxe Edition is an Internet client suite that includes Navigator 4.0, Netcaster, Messenger, Collabra, and Conference.

Net.Medic is available as a standalone product from Vital Signs Software (`www.vitalsigns.com`).



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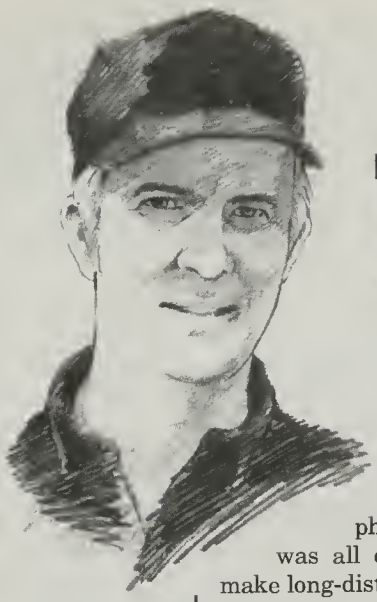

TECHNOLOGY FRONT

by Jim Thompson
Western News Service

MAKING THE CONNECTION — INTERNET TELEPHONY AND THE INT100CS

When it comes to saving some money, I am usually the first in line. When I heard about the possibility of saving hundreds, maybe even thousands of dollars in voice telephone charges by using the Internet, I was all ears. By using the Internet, you can make long-distance calls for free. To make it even better, it is perfectly legal!

Jim Thompson is Managing Editor of Western News Service in Los Angeles, California. CompuServe: **72777,2677**, MCI Mail: **321-4127**, **mailto: jim.thompson @wnsnews.com**

Calling via the Internet is not news. A year or so ago, I tried using the Internet for calls (called Internet telephony) but found the available equipment, at the time, hard to use and even harder to set up. The majority of the setups, even today, consist of a headset with ear piece or just a speaker and a microphone. Many of these are not full duplex and result in lots of feedback and poor audio quality.

I was delighted when I discovered the INT100CS Internet Telephone from Riparious Ventures, Inc. The unit consists of a "standard" telephone handset which plugs into the microphone and speaker connections of your PC sound card. There is also a "bypass connection" which allows you to connect a set of speakers. In this way you can use the handset for Internet voice calls and the speakers for games, music or any programs that use the sound card. As for the hardware, that's all you need. Add to this the proper software and you're ready to start talking to anyone who is also connected to the Internet. If you know how to use a telephone, you can use the INT100CS.

WHAT IS INTERNET TELEPHONY?

In addition to the hardware, you will need special software and a connection to the Internet to make a call. Though the software, your voice is "sampled" thousands of times per second and turned into digital packets. The packets are compressed for maximum efficiency and then routed over the Internet, like any data, and delivered to the person with whom you are speaking.

The receiving computer converts the digital signals back into sound which is played through its sound card. Although it takes some time for this to happen, the delay is minimal (the entire process only takes about half-a-second) and it all appears to be happening in real time.

The key to making a connection is the software. In the past, the big problem was with the IP addressing. With a dedicated Internet connection the address remains the same (static address). However with a dial-up SLIP/PPP connection the IP address changes each time you log in to the Internet. Software also had to solve the problems of directory services and the quirks of all the different sound cards on the market. The first to resolve the problems was VocalTec, Inc. an Israeli company which introduced Internet Phone (IPhone) back in 1995. Today many software packages are available — some even add video to the mix.

QUESTIONABLE QUALITY

Although you can save a lot of money by calling via the Internet instead of using good ol' Ma Bell, the quality of the connection may not be what you are used to. Generally, the quality is about as good as a cellular telephone connection. There are some pops and static and even some dropped words or phrases. The quality depends on how well the two people speaking configured their software and hardware and the quality of the speakers and microphones on each end. Traffic on the Net during the time of the connection will also determine if there are any "dropped" packets.

Generally, the way things work is that you connect to the Internet, load your Internet telephony software, then you get a list of the people who are on the Net and available to speak. You can then speak with anyone on the "available" list.

There are startup companies that allow you to dial anyone, on any telephone even if they are not connected to the Internet. One of them is VocalTec Communications Ltd. which recently launched a virtual worldwide PC-to-standard telephone network. According to a press release, the network was "created by VocalTec in conjunction with qualified Internet telephony service providers (ITSPs) and with industry support from Motorola, Dialogic Corporation, ITXC Corp., Compaq Computer Corporation and Digital Equipment Corporation.

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"Through the network, users with dial-up Internet connections anywhere in the world can dial from their PCs using Internet Phone to regular telephones all over the world. Special calling rates are available to:

"Australia (Melbourne, Perth, Sydney), Brazil (Rio de Janeiro), Canada (Toronto), China (Beijing, Hong Kong), Columbia (Bogotá), France (Paris, Toulouse), Israel (Tel Aviv), Indonesia (Jakarta), Japan (Tokyo), Malaysia (Kuala Lumpur), Lebanon (Beirut), Paraguay (Asuncion), Philippines (Manila), Singapore, Taiwan (Hsinchu, Taipei), United Kingdom (London), USSR (Moscow, St. Petersburg), and broad based coverage in the United States (Boston, Los Angeles, Miami, New York City, Salt Lake City, San Diego, San Francisco, Sunnyvale CA)."

The connections are made through participating ITSPs in VocalTec's NextGen Telephony Program. Check out their web site (`www.vocaltec.com`) for details on how to become a part of the program.

Connecting to a regular telephone is still in the startup stages. Your initial use will be connecting from PC to PC via the Internet. For this, there are several software packages available. (See "Internet Telephone Software" in this issue for a list.)

The INT100CS is bundled with a trial version of WebPhone 3.0 from NetSpeak. It allows for connections of up to three minutes in length. For a fee it can be upgraded to the full version which allows for calls of unlimited length.

This software is designed to have the appearance of a cellular phone. This design gives it a familiar look and shortens the learning time. To use WebPhone you will need a 80486DX-66MHz or faster processor running Windows 3.1 or Windows 95, at least 8 MB of RAM (better have 16 MB for Windows 95), a sound card, a Winsock-compliant stack and a 28.8 Kbps or faster modem.

Other programs may require a beefier processor or more memory, but the list above will work for most software.

In designing its hardware, Riparious Ventures, Inc. applied the very idea that has worked for years and which is familiar with everyone in the world — a standard telephone handset. The handset eliminates such problems as feedback and duplexing, it maintains a constant speaking distance so that the volume doesn't vary as you speak, and allows privacy.

The INT100CS is compatible with SoundBlaster sound cards.

CONCLUSION

The INT100CS phone is convenient, easy to set up and easy to use. It's design and full-duplex ability eliminates the feedback problems usually found in setups that consists of a speaker and a microphone.

However, making telephone calls via the Internet still has a long way to go. Currently, it is still a bit difficult to make a connection and the quality is not what it should be. All of the connections I made were scratchy and filled with noise. There is also the problem of not being able to call someone who is not connected to the Internet. This is changing, and the day will come when you can call anyone.

Meanwhile, many find using the Internet for a computer-to-computer telephone connection convenient and economical. I know of a number of programmers working on projects in various parts of the country who save hundreds of dollars every month on telephone calls by using Internet telephony. Of course, your maiden aunt would probably have a difficult, if not impossible, time figuring out how to get a connection. But this is changing and the day will soon be here when making a call via the Internet will be easy. Of course, if you want to call a standard telephone, you will need to make the connection through a telephone company so there will be a charge. Presumably, this charge will be less than that of a standard long-distance carrier.

Yes, there are still problems with Internet telephony but, as the old song says, "the times they are a changin'." This is a technology that is emerging rapidly and will soon be a normal part of all our lives.

CONTACTS:

INT100CS
Internet Telephone Riparious Ventures, Inc.
375 Padonia Road West Suite 200
Timonium MD 21093
Tel: (410) 561-8811
http://internet_telephone.riparius.com
Cost: $29.95

VocalTec Communications Ltd.
35 Industrial Parkway,
Northvale, NJ 07647
Tel: 201-768-9400
Fax: 201-768-8893
http://www. vocaltec.com
E-mail: info@vocaltec.com

INTERNET TELEPHONE SOFTWARE

Here is a partial list of some of the most popular Internet telephone software and their web addresses. You may need to try a few before find the one that works best with your equipment.

- **WebPhone** (www.itelco.com) — This one is bundled with the INT100CS. It provides excellent sound quality and is easy to setup and use. the latest version also includes video conferencing. The trial version allows 3 minute calls until registered (online) for **$19.95** or **$49.99** (personal and full feature versions)
- **Internet Phone** (www.vocaltec.com) — This one includes the ability for PC-to-standard telephone connections.
- **Microsoft NetMeeting** (www.microsoft.com/netmeeting) — This one requires a beefier (likes a Pentium 133 or greater) processor but delivers with solid performance.
- **Intel Internet Phone** (www.intel.com/iaweb/cpc/iphone/index.htm)
- **CoolTalk** (www.netscape.com)
- **Speak Freely** (www.fourmilab.ch/netfone/windows/speak_freely.html)
- **WebTalk** (www.qdeck.com/qdeck/products/webtalk)
- **FreeTel** (www.freetel.Inter.net)
- **Sound Ideas** (www.newstartech.com)
- **Televox** (www.voxware.com)
- **Digiphone** (www.planeteers.com/index.htm)
- **Softphone** (www.pak.net)
- **Powwow** (www.tribal.com)
- **NetTalk** (www.col.se/htmldocs/com/nettalk/used/n-talk1a.htm)
- **IBM Internet Connection Phone** (www.ibm.com/internet/icphone.html)
- **PGPfone** (web.mit.edu/network/pgpfone)
- **CyberPhone** (magenta.com/cyberphone)
- **Visual IRC** (apollo3.com/~acable/virc.html)
- **TALKShow** (www.futurelabs.com)
- **Internet Conference** (www.insitu.com)
- **Digital Phone** (www-leland.stanford.edu/~sjzhang/DIGIPHONE)
- **Voice Chat** (cjb.ico.net/~dan/voicechat.html)
- **IRIS Phone** (www.irisphone.com)
- **Internet Party Line** (www.intel.com/iaweb/aplets/iplpage.htm)
- **GatherTalk** (dsp.ee.cuhk.edu.hk/proj/gtalk/welcome.html)
- **ForeFront** (www.ffg.com/rt.html)

by
Reed Hundt

THE INTERNET: FROM HERE TO UBIQUITY

Taking Credit. Getting blamed. Earning your just deserts; getting just what your deserve

The following is a prepared speech by outgoing Federal Communications Commission Chairman Reed Hundt. It was given at the Symposium on Hot Chips at the Institute of Electrical and Electronics Engineers on August 26, 1997.

This is the story of American life. No one knows better than the denizens of the great Valley that America is about success vs. failure; going public vs. going bust; getting an A vs. an F; getting credited or getting debited.

So, because we're here at Valuation Central, the Home of the Rave and the Land of the Screed, I'm willing to pose my test question. So how has the FCC done in the four years while I've been the chairman? Let's go to the data points:

- when I started as chairman at the end of 1993, there were 30,000 domain names; now there are 1.6 million.
- there was no such thing as a browser; now every CP (that's computer person) rides the info highway.
- the small handful of Internet access providers charged by the minute, with costs reaching triple figures per month; now **$19.95** buys you all the bits you can eat and ISPs (intrepid sellers of progress) number 4,000 and counting upwards.
- the law supported monopolies and regulation in telco and cable; now the FCC has got a new law that backs competition and deregulation in all communications markets — which, I remind you, are almost three times the size of the software market.

Also, while I've been Chairman,

- we've discovered that life on earth probably began on Mars and we havethe best pictures ever from our birth planet;
- the tobacco industry admitted it causes cancer;
- my law school classmate and high school classmate were reelected President and Vice President;
- the nation has had its longest economic boom in history;
- NATO has extended to some of its enemies and most of the rest want in;
- the budget's been balanced;
- Silicon Valley has seen, as John Doerr puts it, the greatest creation of wealth in history;
- welfare, big government, and Medicare have all been reformed;
- Cal Ripken broke the consecutive game streak and my team, the Orioles, is best in baseball;

So I don't know about all of you, but I'm running on my record. It wasn't that hard really. The Internet stuff I have particularly enjoyed taking credit for.

At any rate, with the market at an all-time high, it does seem like a good time to quit. If it drops now, blame the new guy.

The Senate is preparing to confirm in September four new commissioners, including my successor, the FCC's fine and able Californian, general counsel Bill Kennard. He will have to go some to top that cloning I invented in some of my spare time.

But as a kind of farewell message to the Valley I want today to talk to you about what no one has yet done, and what needs doing for and by all of us, because none of us can do it acting alone. It is this: we need a fully developed Internet to give us competition, deregulation, economic growth, social change, high productivity, new record sales

of hardware and software: in short, a better America. We're not getting it fast enough or spread far enough through our country's different geographic regions and demographic groups.

I want to see the Internet grow like kudzu everywhere in this country, with access for poor and rich, seniors and kids, English speakers and people just learning the *lingua franca*.

I also want to see the Internet provide a key answer to the problem of competition in the local telephone markets. A year and a half after the opening of California's telephone markets only about one percent of consumers are taking phone service from anyone but the traditional monopolist. And many major companies are delaying or canceling plans to compete. This is totally unsatisfactory. The Internet can change the picture, introducing competition in data and ultimately video and voice.

In short, we need an alternative, packet-switched, worldwide network. We can keep the current circuit switched network too; but we need both.

In terms of architecture, we need a high-speed, congestion-free, always reliable, friction-free, packet-switched, big bandwidth, data-friendly network that is universally available, competitively priced, and capable of driving our economy to new heights. We need a data network that can easily carry voice, instead of what we have today, a voice network struggling to carry data.

We need a fully developed Internet to give us competition, deregulation, economic growth, social change, high productivity

In terms of social impact, we need instant access to the libraries of the world at the fingertips of every child in every classroom in every school in the country pursuant to the Snowe-Rockefeller law that takes effect in January. With this step alone we would do more to eliminate inequality in educational opportunity than has ever been done since Horace Mann invented public schools.

And we need the alternative big bandwidth high-speed data network installed in all rural health care facilities, under the same law. Education and health care ought to be primarily dependent on this new digital network.

In terms of media, we need to change forever the anti-individual, exclusively mass market, conglomerate-dominated centralized control model of lowest common denominator content. We need to replace it with unrestricted capacity to send and limitless capability to choose.

Are you with me on this folks?

The country's communications network of today is a **$300 billion** sunk cost circuit switched telco network whale with the tiny market of ISPs circling around like pilot fish. Today's network is not the new species of communications network that I'm hoping for and that the country needs. We've built new infrastructures before: a hundred years ago the country needed ubiquitous, heavy trafficked railroad and telephone systems.

The stories of the railroads and the telephone are stories of how bottleneck monopolies built the economy but also choked competition, raised prices, created wealth and pockets of poverty, and sparked government intervention to assure some fairness in the balance between citizens and capitalism.

The construction of the 21st century network, our packet-switched Internet, will be equally complicated and challenging. But I believe that we can get this job done better and smarter and fairer than any other major construction project in history. Our successes so far encourage us.

But I see five major threats to the rapid and successful development of this new world of communication. First, the economics of the Internet at this time are, to use a technical term, "wacky." Demand for bandwidth isn't met; reliability is too uncertain; and prices for many components and services are too high. The principal reason is that the Internet is for the most part a legacy of the hybrid of regulated monopoly telcos and the anarchic not-for-profit academic world. This hybrid needs to evolve.

But unless efficient and competitive markets drive the growth of the Internet, its successful evolution is threatened. Already dangerous signs of congestion appear: the circuit switched network designed for three minute calls is far from ready to handle several hours of Internet traffic per household per day. There's only one sure way to solve the congestion problem: open and aggressive and efficient competition.

But the key congestion points of the Internet aren't effectively open to competition.

Demand goes unsatisfied. Data, including fax, is the fastest growing segment of telecommunications traffic. But we're not yet able to use the Internet to promote local competition with the telephone company. And Internet businesses aren't yet able to provide the highly reliable, high-bandwidth services needed to drive the Internet from here to ubiquity.

So it turns out that the battle you've been reading about between the long-distance companies and the local telco monopolies isn't just about those two sets of players. It's very much about companies trying to build the Internet and about others — like our glorious software industry — that will benefit from competition.

And it turns out that the FCC's fight for meaningful local competition isn't just about whether consumers will have a meaningful choice for telephone service. It's also about whether the great mass of American consumers will have a meaningful and affordable and enjoyable opportunity to use the Internet and its services.

Just look at some of the congestion points and what's needed to relieve them.

The Local Loop. Those wires weren't engineered for digital, packet-switched communications, and they are owned by monopolies that want to dictate their use and their users. We need to free up those loops for high-speed digital communica-

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tions. We need rules that ensure that any competitor can lease them and put them to any new souped-up *coppercopeia* use.

The Local Switch. Local switches are what telcos use to route traffic from users to ISPs. These switches are for the most part owned by monopolies. We need to ensure that any new competitor can share their efficiencies or, better yet, route data traffic around them onto packet networks.

T-1 circuits. T-1s are the basic data transmission circuits purchased by ISPs. They are usually offered by telco monopolies, and the prices are far higher than they should be. Competition is necessary to lower these prices. In the meantime the FCC needs the power to lower these prices for both interstate and intrastate T-1s. This is a **five to $10 billion** annual business for telcos; decreased prices will threaten telcos, but will have a huge positive impact on the Internet.

The Internet addressing system. We need a new means of managing Internet domain names and other addresses. The current system is not reliable or fair.

Inside and Outside Wiring. The connection to the house and the wires inside the house need to be open to competitors. The existing telcos and cable companies have legitimate rights to some of these facilities, but these rights can't be used to exercise their monopoly power and thwart competition.

So my first point is that for our high bandwidth, packet-switched, Internet-friendly world we need the right rules to guarantee competition at each of these congestion points.

My second point is that we can't have the wrong rules written. There are continued efforts to write new rules of law to "help" the Internet. So far they aren't being written right. The first example is the Communications Decency Act, overturned by the Supreme Court, fortunately.

A new bill introduced in Congress last month called the Internet Protection Act is another example of a grievous misstep. Though the stated aims of the bill are generally worthy, in practical effect the bill would let telcos overcharge ISPs; would stymie access to their loops by the 40 xDSL companies getting going in California alone right now; and would fail to cure any of the market failures that cause Internet congestion today.

Third, even if we have the right rules of law, they can be frustrated and undermined by the rules of lawyers. The 1996 Telecom Act is a right law but the legal process of implementing it is turning out to be a nightmare of delay and distortion by reviewing courts.

So far the monopoly telcos have persuaded judges to hold that the FCC has no power to insist on competition in local telephone markets. We're trying to get this case to the Supreme Court but the telephone companies are fighting for delay.

Here we have a law that everyone thought empowered the FCC to open all communications markets, and the courts are enjoining us, telling us that the states get to decide these matters. When the states' rights agenda is used to help shrink big government I admit to some sympathy. But when it's used to bolster monopolies and stifle interstate commerce and create years of litigation-induced delay, I think something's gone grievously wrong with our legal culture.

I admire lawyers' arguments. But that's because I'm a lawyer. Even worse, I'm a son of a lawyer.

On the other hand, only vibrant competition and not debates about jurisdiction will attract the investment necessary to build our data networks. Only vigorous competition, as opposed to vigorous courtroom advocacy, will alleviate bottlenecks in response to real demand.

Fourth, the new data networks and the new services they will carry depend on big bandwidth. No bandwidth, no business. The faster it's made available the faster it will be used. The spectrum is an enormous opportunity for a bandwidth explosion, and the FCC's economists and spectrum experts have invented a new spectrum policy designed to produce make high volumes of bandwidth available at low cost.

But the push-back against pro-bandwidth spectrum policies has already begun.

Last month, Congress nearly passed a law ordering the FCC not to let spectrum licensees have freedom to use their spectrum the way they wanted. That could have stopped us from just getting out of the way, for example, when wireless cable firms and, recently, a low-power TV licensee decided to use their spectrum for the new and different use of high-speed Internet access.

Congress also nearly required the FCC to slow down the pace of licensing unused spectrum. The big bandwidth networks of the future will use as much bandwidth as we get on the market. But the status quo is threatened by this policy and they're pushing back.

Last spring the FCC distributed licenses for the new over-the-air local medium called digital TV. We refused to mandate computer-unfriendly interlaced high-definition TV, which would have forced licensees to devote virtually all of their digital capacity to picture quality — whether the public wanted it or not; indeed, whether the public could tell the difference between one format or another.

Our view was digital television was an opportunity for big bandwidth — not big government pushing its bad ideas on business.

Now this fall, with innovators at ABC, Sinclair and other broadcast companies developing new multichannel digital programming and services to broadcast to any kind of digital receiver — converter boxes, digital TV sets and I hope even laptops — some in Congress are protesting.

As ABC's President Preston Padden explained in a letter to the Hill, digital technology allows broadcasters to compete effectively in a fractionalized media market while also offering multiple wide-screen pictures of a quality "virtually indistinguishable to the consumer" from high definition TV. Even after hearing that explanation, a congressional aide said yesterday that Congress wouldn't let broadcasters "off the hook" and would insist on high definition.

Why doesn't everyone want a new high-bandwidth digital medium? Why does anyone want to use government power to promote high-end, multi-thousand dollar appliances for the electronics industry to sell?

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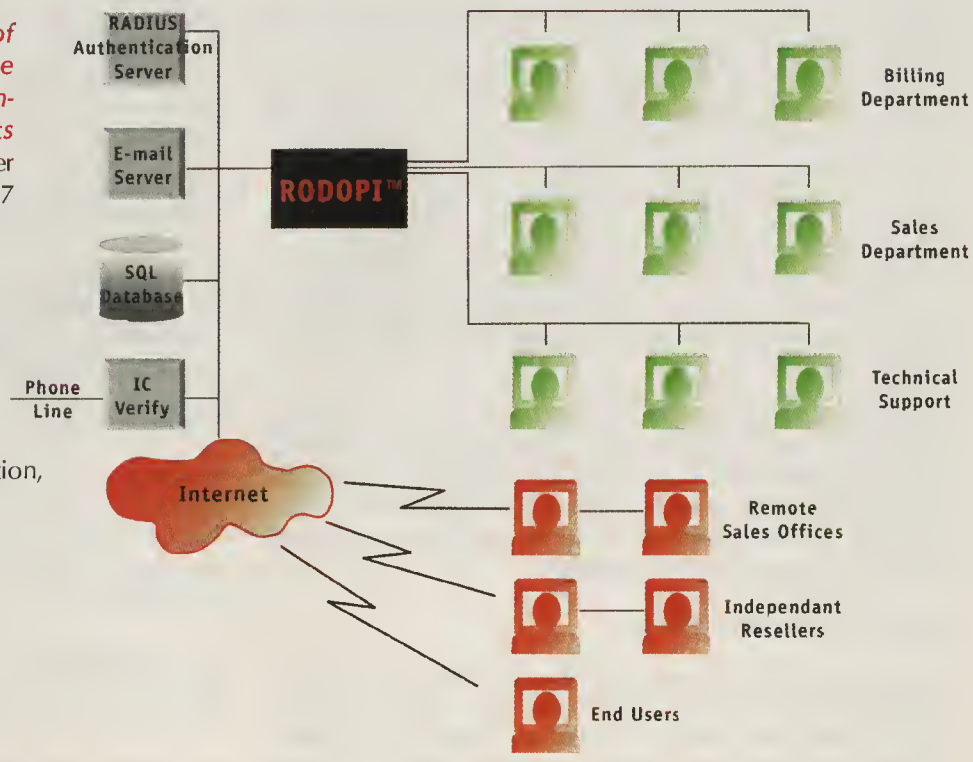

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And as a backup they want the FCC to tax the heck out of any subscription digital use, including Internet access. If you can't ban it, tax it, is the theory from these congressional leaders. Me, I'm an anti-tax, pro First Amendment, marketplace-oriented guy. So I would love this fight. It almost makes me want to stay in government.

The fifth threat to the construction of a ubiquitous alternative broadband packet-switched digital network is the reaction of the status quo. The Internet today is like the buccaneers of England's first Queen Elizabeth, jauntily stealing the gold from the galleons of Spain — that's the existing proprietary networks that rake in north of $200 billion in revenue and don't mind too much losing a bill or two to the ISPs. But eventually the Spanish Armada will set sail on merry England; eventually when the poaching gets rich enough and there's Internet access in every pager, curtain rod, belt buckle and laptop, the powers of the status quo will mount an army of lobbyists and public relations firms and economists to take on the packet-switched threat. So I suspect.

Is it possible that the packet-switched technology is that big a threat to the status quo? As the great poet Wallace Stevens wrote: "By one caterpillar is great Africa devoured, and Gibralter dissolved like spit in the wind." In my view within five years in some markets and ten in most, packet-switched minutes will exceed circuit switched.

And the Armada will set sail.

Already you have seen this year that the telcos combined to seek from the FCC new charges, called access charges, on the Internet. Their idea was that all Internet traffic would generate about six cents per minute in charges paid to the local phone companies that originate and terminate the call on their local loop, the lines to your house or office.

At a couple of hours of usage per day —hardly unusual for Internet folk —- that's about $200 a month. Prominent political forces told the FCC to agree with the phone companies. We didn't. But being in lobbying means never having to say you're sorry. This and other arguments will return.

If humans can create all these obstacles to rapid, efficient, and private sector development of the future networks of America, then humans can solve them. Here's what should be done: We do need a new law, a Free the Internet Law. It can be blessedly short. Here are its key components.

First, the First Amendment should clearly protect Internet content from government regulation.

Second, the FCC should have the power to order states not to regulate digital packet network services, whether offered by new entrants or by incumbents. There are thousands of pages of rules written by state legislatures and state commissions that regulate investment, pricing, service quality and almost every other aspect of the existing telephone networks. These are the rules the FCC should be able to order the states not to apply to the country's data networks.

Third, the data networks should be free from subsidy. They shouldn't pay into any subsidy pool and they shouldn't take out. Let the markets build them.

Fourth, the FCC should have clear authority to impose, in every state, policies that open any and all communications bottlenecks to competition.

Fifth, this is America and every citizen has a right to take the government and any other citizen to court. But does every court in the country have to be involved? So far GTE has sued in 30 federal district courts in 23 states arguing that they are entitled to charge competitors for their historic cost of building their networks. All judicial review of the essential issues in the telecom world should be in a single court of appeals. Simplicity is the mother of wisdom. Complexity is the father of confusion and delay.

A short and simple law along these lines would be a real Internet Promotion Act.

The law wouldn't guarantee the Internet's success. Whether we have a ubiquitous high-speed, high-bandwidth packet-switched digital network really depends on the brilliant entrepreneurs here in the Valley and elsewhere working around the clock to invent the services and products that will drive Internet expansion.

Washington can't make the Internet succeed. But it can be an obstacle to its success — through unwise action and unwise inaction. There are plenty good ideas in Washington. Whether my modest, market-oriented, competition-friendly, deregulatory proposals fall in that category — you be the judge.

But I'm confident this nation can get its communications policies right and get the real info highway built fast fairly and efficiently all across this land.

One person who added to my confidence, and the market's, lately, is Alan Greenspan. Some say he deserves credit for some of those economic wonders I mentioned happened during my term at the FCC. I guess you'll be the judge there too.

But I praise him not only for his steady brilliant monetary management but also for his insights into the power of the Internet. In testimony to Congress last month, Chairman Greenspan noted that there have been "increasingly successful and pervasive applications of recent technological advances, especially in telecommunications and computers [that] enhance efficiencies in production processes throughout the economy."

He continued: "An expected result of the widespread and effective application of information and other technologies would be a significant increase in productivity and reduction in business cost."

Central bankers are not given to hyperbole, but I think I can say that the Chairman is forecasting a marvelous era of growth and opportunity driven in large part by the new, widespread, effective networks of the future.

In short, if we build it, the wonders will come.

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SMALL TOWN ISP
WITH A BIG SET OF WHEELS

by Steve Clark

Steve Wilcox, of Palmer Divide Communications, winner of the Hummer at ISPCON Photography by Gary Funk

He thought it was a friend playing a joke. Fifteen minutes after walking in the door from a four-day trip to ISPCon in San Francisco, Steve Wilcox received a call from a One Inc. representative telling him that he had won the cherished $73,000 door prize — a 1997 Hummer.

Wilcox was flying home as his name was being drawn. He had to leave early due to overbooked flights and a tight schedule in which he shuffles his time between being a full-time student and full-time system administrator for Palmer Divide Communications (`www.divide.net`). Now, he's the most popular student in the parking lots at the University of Colorado at Colorado Springs.

Like many of the show's attendees, Wilcox was there to learn more about his options as an ISP. Palmer Divide has been around for only two years, and this was his first visit to San Francisco and ISPCon. To be eligible for the door prize, attendees had to get a stamp from the Hummer's sponsors — 3Com, Bay Networks, Boardwatch, Cisco, Compaq, Digital, eSoft, Rockwell, and Texas Instruments. TI was a late addition to the show, agreeing to sponsor the Hummer as a way to have a presence in promoting its DSP chips used in so many telecom devices. After visiting three booths, Wilcox went to the 3Com/US Robotics booth, where the rep asked to stamp his card. He realized then that he should revisit the other booths, get his stamp, and enter the drawing.

Wilcox, 22, is the now the second person in Monument, Colorado, to own a Hummer. The other guy, computer programmer Kevin Beebe, has two of them. The town is tucked away nicely in the rolling hills that separate Denver and the United States Air Force Academy, which spans the northern sector of Colorado Springs. The only time Monument gets any publicity is during snow or hail storms because Monument Hill, the part of Interstate 25 that cuts through the town, is 7,352 feet above sea level. It is often the sight of the worst weather and driving conditions. When weather is good, commuters speed through Monument since it's the first piece of straight highway between the congestion of Colorado Springs and Denver.

Monument is part of a three-town community called Tri Lakes, which includes Palmer Lake and Woodmor. All three towns combined have a population of about 10,000 people, and Palmer

Divide has 100 of them as customers. Wilcox moved there fourteen years ago and still lives in the same house his parents bought after his father, Steve Sr., left the military. Steve Jr., an admitted "military brat," lived in Germany for most of the first eight years of his life. When the Wilcox family moved to Monument, the biggest thing in town was a 7-Eleven convenience store. Now, the town has hit the "big time," as Wilcox says, with a new Safeway supermarket. Like most of the Colorado Front Range, from Fort Collins south to Pueblo, growth is a big concern in Monument. Scores of high-end housing developments are popping up all over, to handle the migration from the coasts. Wilcox says that the third of the Tri Lakes towns, Woodmor, isn't even a town. Rather, it's a housing development trying to incorporate. Nonetheless, Monument is a small and safe community, where people leave their cars unlocked and everybody knows each other.

Steve Wilcox was popular there before he won the Hummer. He has a charming, outgoing, and trusting personality, and he enjoys running a small ISP for a small community. He says that Palmer Divide has no intention of even wanting to be like America Online, or even local heavyweight Rocky Mountain Internet. He says that if you have a problem with your Internet service, you can come to his house, have a drink and work it out. Wilcox works from his bedroom in his parents' house, which is run by his two dogs, Bassie and Rascal. Most of his work is done remotely. He can maintain his SPARC and Solaris servers through his 33.6 Kbps dial-up connection to his business, which sits in the basement of a small office building on the other side of the highway.

He starts each day by reading roughly 250 e-mails, most of which are from the inet-access mailing list. Wilcox says that inet-access is a must-have for system administrators.

True to form of an Internet purist, he uses the UNIX-based "pine" to read his e-mail and a text editor to write HTML. He says all of the good web designers he knows use the same approach. Not too long ago, Wilcox took a page written with Microsoft's Front Page and reduced it to one-fourth it's original size simply by stripping out all the extraneous commands. He even made it look better because he was able to fix a problem with a centered image, which made the web page look good on one of the popular browsers but not the other.

Since half of Palmer Divide's business is web hosting, he focuses his efforts on making his customers' web sites look good and function well. "A front page should load in less than 30 seconds through a 28.8 modem," he says, "that way, it's almost instantaneous with a T-1 connection."

Wilcox has been messing around with computers since he was five. His father has always been a hacker, a skill he picked up in the military and on his own. As a young programmer, the junior Wilcox tinkered with the idea of writing network-based computer games. His friends all thought he was nuts.

Fourteen years ago, the Wilcox family moved to Monument when Steve's father left the military and got a job with Valid Logic Systems, which had facilities in Denver and Colorado Springs. His father now manages high-end databases for MCI in Colorado Springs. He works with DEC Alpha machines that require a gigabyte of RAM.

In the late eighties, the teen-aged Wilcox began using e-mail and gopher. While in high school, all things Internet were named after characters from Archie Comics. But in high school, he was busy improving his programming skills. His interest in computer games grew into experiments in artificial intelligence, a field in which he is still very interested. His computer science teacher at Lewis Palmer High School, Gary Brown, started a "high-tech explorations" program whereby students would be given semester-long projects in computer science and electrical engineering. Wilcox started with a networking project. He set up the school's computer lab on a Novell network.

Brown put together a team of his hottest programmers, Wilcox included, to compete in Computourney, a programming tournament sponsored by Hewlett-Packard. The Lewis Palmer team took first place in the regional finals and were awarded $7,000 in Novell equipment. This bothered Brown since he already had a Novell network, which was set up by Wilcox. The teacher really wanted the second place prize which was an HP Laserjet. The following year, Wilcox and his teammates took first place again in the competition. They were the first team to ever complete all six problems in the contests. Each problem essentially asked the students to write a modular piece of code.

Photography by Conrad Hall

Wilcox, 22, added decorations to his new Hummer

Problem 2 was a function of problem one, and problem 3 was a function of problem 2, and so on. The sixth problem was usually the easiest. Not only did Wilcox's team finish all six problems, they commented every line.

After a successful stint in high school, Steve Wilcox graduated in 1993. He then entered the University of Colorado at Colorado Springs and he plans to graduate next spring. He's on the five-year plan because he's a little too successful as an ISP network administrator. He has been recruited by several high-tech companies, which he has rejected. He'd rather work from his bedroom at his local business.

Palmer Divide Communications started as the brainchild of Joe Beggs, a professional carpet cleaner. It was to be a simple web page promoting local businesses, schools, non-profits and churches. Late last year, Beggs bounced his idea off of Wilcox, then a clerk at the local Radio Shack. Ideas like this tend to take on a life of their own. The company went online in February 1997 as a full-blown ISP. Beggs' wife, Reesa, is the director of marketing and daughter Jennifer, is the accounts manager. Wilcox is the system administrator. The web design and corporate sales are done through Gigmedia Consulting, a firm that specializes in Internet and high-tech services for businesses. Wilcox's friend and companion on the Hummer journey from California to Colorado, Dave Shroeder, does a lot of the company's web design.

Wilcox likes his new Hummer Photography by **Conrad Hall**

The Palmer Divide operation sits in a 10-by-10 storage closet in the basement of a small office building owned by an eye doctor and a dentist. The ISP actually shares the 100-square-foot room with the eye doctor's lens grinding operation. However, the dentist is planning to sell his half of the building to the eye doctor, who will then take over the dentist's space. This will allow Palmer Divide to expand its operation into the room's 50 square feet.

In addition to the SPARC and Solaris servers, the small room is home to two Livingston Portmasters, a Microcom ISPorte, and a Linux box. The only time Wilcox goes to the facility is if there's a hardware problem or to play with Linux.

Palmer Divide plans to grow as more people move into the Tri Lakes area and as more residents find that they need Internet service. At this point, the company's profits go in to new equipment. The company plans to stay local. In the developing areas of Tri Lakes, fiber is being run to all the new houses. If US West can find a way to accommodate the local ISP, then Palmer Divide plans to offer services beyond dial-up and web hosting.

Wilcox thinks that the Net will become a way of life for most households. People will use e-mail the same way he does, to keep in touch with friends and family.

People have always paid attention to Steve Wilcox because of his programming skills. But he's a very friendly guy as well. His people skills certainly help him to promote his business. He's usually out and about, talking with neighbors, going to parties, or in his backyard spying on the stars. When he needs a break, he locks himself in the Palmer Divide facilities and teaches himself Linux.

On the way home from California, he drove his new Hummer into a rest stop on Interstate 70 in Utah. Two boys, about eight and ten, admired the Hummer from a distance. For some reason, kids are fascinated by these vehicles. Wilcox invited the reluctant boys over to look at it. They checked it out and were so excited that their mother gave Wilcox a look as if to say, "Thanks for riling up my boys."

Wilcox likes how people, especially kids, are attracted to his new set of wheels. While driving it down the strip in Las Vegas on the way home, cruisers in Lamborghinis and Ferraris gave him the thumbs up. After getting the Hummer home, he took it to a party, where he spent most of the night giving free rides to everyone, even strangers. Several people asked about how he won it, and he explained how he went to this show to learn more about his Internet business. Better yet, when people learned that he was an ISP, they asked him for a business card because they were looking to get connected. ◆

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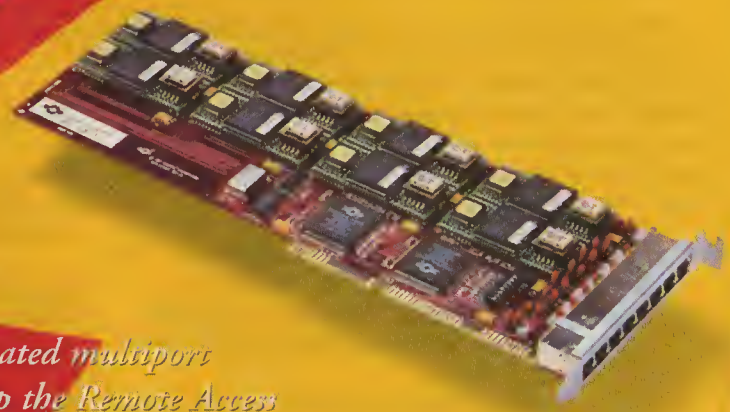

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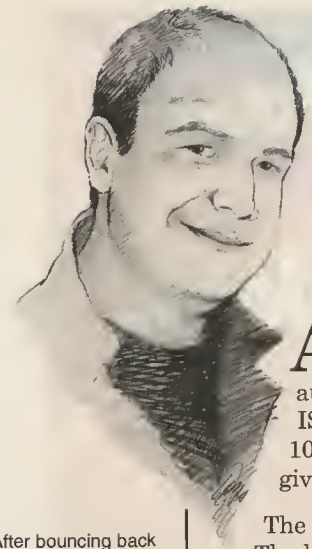

ISP$ MARKET REPORT

Paul Stapleton

A NEW ISP INVESTMENT STORY — WITH DATA TO BOOT

Attention investors... There is a new ISP investment story to tell. I am not the author of it, ISPs are. I just listened to it at ISPCon '97 and read about it in the recent 10-Qs. I am merely trying to capture it. I will give attribution where appropriate.

The new investment story is quite attractive. The headline reads something like this:

"Fast moving, technically adept companies continue to capture and redefine one of the largest markets in the world. Positive cash flow on the horizon. Traditional telcos revenue is threatened."

The old story, to be sure, was not much of an investment story. The press was filled with the same headlines over and over....

ISPs are losing money
*ISPs will never make money at **$19.95***
Internet access is a commodity business
Internet access will be dominated by the telcos
The industry is consolidating to a few major players

Let's call it the traditional wisdom. It is only slowly starting to change.

After bouncing back and forth between finance, publishing and the Internet, Paul Stapleton has landed squarely in the middle. He is Managing Director of Stapleton & Associates, an Internet focused financial consulting firm. Clients include major players as well as start ups and middle market companies in media, telecomm and software.

Paul Stapleton is also editor of *ISP Report* (to subscribe, **e-mail** `ispreport@mediabiz.com` or call **303-271-9960** or fax 303-271-9965; annual rate is $195; sample issue sent on request) the newsletter of record for financial activity in the ISP industry. Paul welcomes comments and suggestions at `paulstapes@aol.com`. He lives in Boulder, CO with his lovely new bride.

The Traditional Wisdom	The New Investment Story
ISPs can't make money at $19.95.	Positive cash flow is possible (i.e. MSPG, NETC, OZEMY).
We don't know the future market potential.	The future market is bigger than traditional telecom.
Telcos will own this market.	More players than ever, Telcos buying in.
Internet access is a commodity business costs.	Internet access is service intensive with high switching
You need to be facilities-based	You need to master your part of the value chain.
Smart money (i.e. VCs and Wall Street) is staying away.	Really smart money is interested - Soros' Quantum Fund in EarthLink. New financial structures - high yield debt Verio, Metricom Not a VC business.

But that's okay for now. The ISP industry does not need a lot of investors, just a few of the right ones. We don't need a Fidelity portfolio manager looking at this market right now. There is no place to put big dollars. The entire public market is capitalized at **$11 billion**. But 88 percent of that belongs to three companies, AOL, CompuServe and @HOME. That leaves a **$1.3 billion** market capitalization for the other ten public ISPs in the index.

One could say I have been co-opted by the enthusiasm of ISPCon and the fact that I have been writing this column for a while. To be honest one can't build much of a business career telling people, "go away, there is no money to be made here."

Now with that potential bias clearly stated, I think we can all agree the ultimate investment question always is, "does this business have a recurring revenue stream that can generate earnings (i.e. free cash flow)?".

Let's look at the 2Q numbers and analyze a few recent events.

YOU CAN MAKE MONEY AT $19.95

When people say ISPs can't "make money" at **$19.95**, they are saying there is not enough margin in the business at **$19.95**. The recent 10-Qs tell me they are wrong.

Across the industry, ISPs' income statements are trending toward positive cash flow and earnings. Many privately held ISPs are already there. Let's look at the publics. In the 2Q MindSpring had positive EBITDA of **$621,000** and is predicting profitability in the fourth quarter. NETCOM would have also been EBITDA positive if not for a one time adjustment of **$1.7 million** for its U.K. operation. OzEmail booked **$0.61** per share, albeit I'm not yet sure how much recurring revenue will comes off that software license. And EarthLink is well on its way to break even.

ISPs are showing an ability to manage to the numbers and create a long-term healthy recurring revenue stream at **$19.95**. They have also begun leveraging the infrastructure and layering in a suite of network products such as web hosting.

THE MARKET IS UNKNOWN BUT VAST

I don't know what the future market size will be. Unlike others, this does not bother me. I'm ignorant of its future size because I believe it will be huge. Every day, Internet access turns more into something I need. It becomes more like telecommunications offerings businesses and consumer need, just as I need my telephone and cable access. It is also looking more and more like something that I can use to substitute for other telecommunications services such as telephony. Only the IP Network has more to offer and will soon offer any product or service I can now buy from a telco.

That means a big, fat market. In the U.S., local phone service is about **$120 billion** per year, long-distance is about **$80 billion**, cable is about **$23 billion**. We're not even talking about the data transmission business, of which ISPs are also going to get a big piece.

Recent IDC Link and Salomon Brothers forecasts call for an **$18.8 billion** Internet access market by 2000.

I'm not worried about lower unit prices because my experience tells me lower prices have actually grown the absolute market revenue in telecommunications. Deregulating long distance is the best example.

TELCOS WILL DOMINATE?

Again I don't know and it doesn't bother me. They have had a few years to try and I see no traditional telco emerging as a dominant player. MCI and Sprint are strong on the backbone side, but in the last year we have seen the number of backbone players increase from eight to 35. Their market share has not increased over the years, it has decreased. AT&T has almost one million WorldNet customers, but that is a small fraction of the total business, and I bet a lot of those people are long-distance customers who get it for free. That translates into no revenue.

Other telcos, such as GTE, WorldCom and the CLECs have bought into the market. As an investor, if the premium is there, that's okay with me.

By the time the "telcos dominate," I won't be able to tell the difference between a telco and an ISP and it won't really matter.

INTERNET ACCESS IS CUSTOMER SERVICE INTENSIVE WITH HIGH SWITCHING COSTS

Investors do not like commodity businesses. Customers buy on price and can switch suppliers easily.

Internet access is not a commodity business. The Net is not humming along. Customer service requirements are high. New offerings are materializing daily.

Long-term, the switching costs will be high. In the not too distant future, the suite of IP network offerings will go deep into the MIS of the business, much more than the traditional telco products. It will be very disruptive, even a career killer, to move them to another IP network provider.

On the consumer side, the more consumer-brand-focused ISPs, such as EarthLink, now offer customized home pages. Customer home pages, possibly combined with frequent flyer miles, are the ultimate retention device. Home pages require time to set up, provide structure to your web experience and evolve with the user. If my home page comes with my access, I am not switching as long as basic performance and price are provided.

ISPs DON'T NEED TO BE FACILITIES-BASED NETWORK

ISPs will be "boxed out" if they don't belong to a facilities-based network. That is the latest piece of half-baked wisdom floating around. Facilities-based carriers will give ISPs better margins and predictable access to pipe. It's the argument the CLECs used to seduce the business oriented ISPs (when in reality what the ISPs really needed form the CLECs was the direct sales force).

Well, I'm in the George Gilder school. Long-term bandwidth will be plentiful and dirt cheap. Do your budgeting and forecasting around that. The recent month offer a good example. UUNET announces its going to charge smaller ISPs for peering. PSINet turns around and offers free peering. Concentrate on the piece of the value chain you do well.

That doesn't mean an ISP shouldn't merge with a facilities-based carrier if the offer is right. It just means you can still build a business if you don't.

THE SMART MONEY IS BACK

George Soros takes half of the recent EarthLink private placement at market price. Verio and Metricom tap the high-yield market for **$100 million** each.

Bay Area venture capitalists are not the only funding source out there. As Harold Robinson of CIBC Wood Gundy pointed out at ISPCon, ISPs are telecom plays. Telecom is traditionally funded with debt, not VC money.

I think we will see a period of structured finance for independent ISPs. There is a real opportunity to build an extremely valuable business in the next few years. This business has a recurring revenue stream that has the ability to produce free cash flow. ◆

Symbol	Exchange	Company	Price 8/4/97	Price 9/10/97	Percent Change	Shares (millions)	Market Capitalization
ATHM	NASD	@HOME	$19.63	$19.14	-2.47%	117.52	$2,249.35
AOL	NYSE	America Online Inc.	$73.63	$76.31	3.65%	95.86	$7,314.92
CSRV	NASD	CompuServe Corp.	$11.38	$13.94	22.55%	92.60	$1,290.84
CNCX	NASD	Concentric Network Corp.	$14.38	$14.63	1.70%	13.51	$197.51
ELNK	NASD	EarthLink Network, Inc.	$11.38	$15.50	36.26%	9.68	$149.98
IDTC	NASD	IDT Corporation	$8.25	$15.50	87.88%	9.89	$153.30
WWW	TSE	iSTAR internet inc.	$2.30	$0.39	-83.04%	24.43	$9.53
MCOM	OTC	Metricom Inc.	$5.50	$5.50	0.00%	13.61	$74.84
MSPG	NASD	MindSpring Enterprises, Inc.	$13.38	$17.13	28.04%	7.48	$128.04
NETC	NASD	NETCOM	$14.63	$13.06	-10.70%	11.68	$152.58
OZEMY	NASD	OzEmail Ltd.	$6.63	$15.75	137.74%	10.20	$160.65
PSIX	NASD	PSINet Inc.	$8.14	$8.69	6.76%	40.27	$349.98
RMII	NASD	Rocky Mountain Internet, Inc.	$2.44	$2.13	-12.82%	4.65	$9.88
		I$P Report index	$14.74	$16.74			$12,241.40

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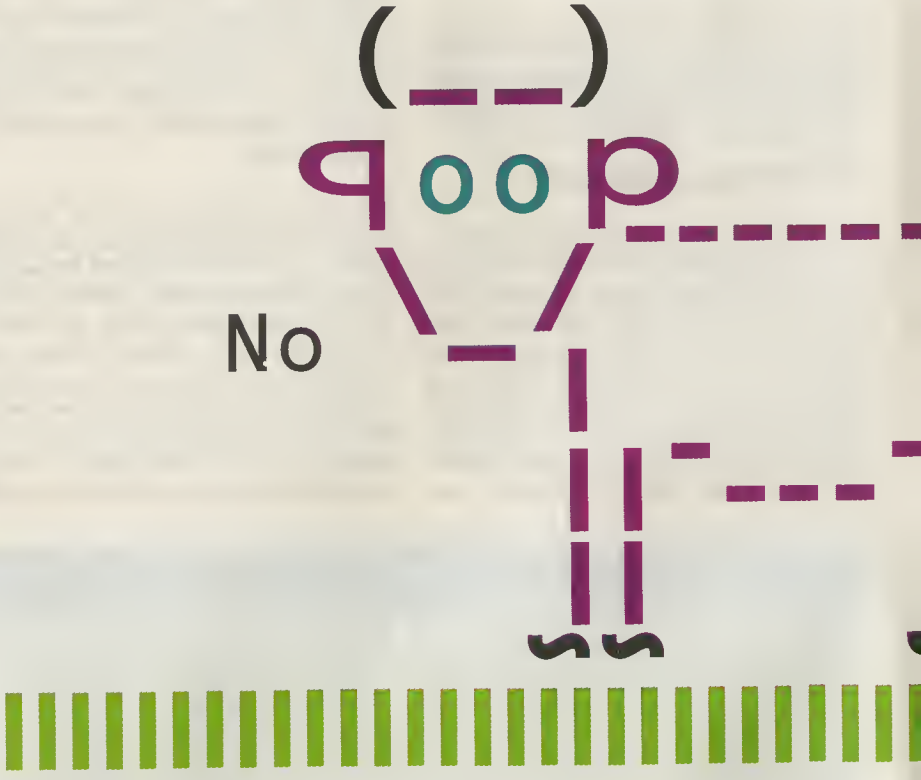

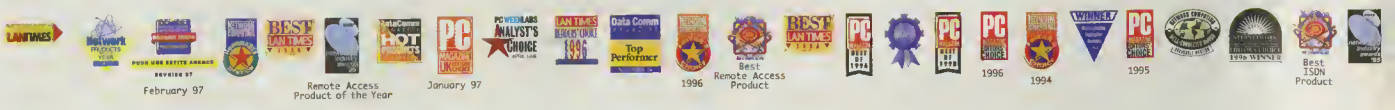

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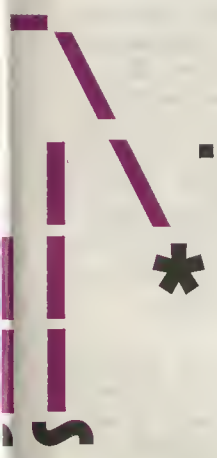

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CONSUMMATE WINSOCK APPS

by Forrest Stroud

DISCONNECTED

Disconnected. Offline. Out of the loop. I never realized just how important modems are until mine stopped working. Like the vast majority of netizens today, I've gotten used to dialing in, logging on, and connecting to the Net every time I turn on the computer. Lose a modem and your computer becomes much less a portal to the world and much more an isolated box good for writing reports and creating presentations — and not much else. Like television, radio, and newsprint, the Internet keeps us up to date on what's going on beyond our conventional boundaries. Take away your connection to the Net and your computer becomes as stagnant as a mosquito larvae-infested pond. Despite becoming a daily part of our lives, the Net and the modem are probably the two aspects of the computer we take most for granted. But unless you have a backup modem available, your access to the Net can be taken away quicker than a heartbeat. So take it from someone who learned the hard way — the modem should never ever be taken for granted...

The applications reviewed here and many more are available at Stroud's Consummate Winsock Apps List, `www.stroud.com` and `http://cws.Internet.com`.

Forrest Stroud currently works in College Station, Texas as a web developer for Mecklermedia Corporation. He recently graduated, with honors, from The University of Texas at Austin. The Information Systems and Data Communications Management major enjoys spending what little free time he has with his wife Joanne and the "zoo" — an ever-expanding collection of dogs and cats that currently consists of a Dalmatian pup (Svoda Pop), a chocolate Lab cross (Roemer), a German Shepherd pup (Marius), and a pair of rascally kittens (Odie Pez and Bo Miggy). Animal lovers can check out pictures of the pets on Stroud's home page at `www.tcac.com/~neuroses`.

Netscape Netcaster

Desc:	A new channel-based push technology system for use with Communicator
Pros:	Push technology built into the web browser, solid selection of channels, any web site can be a channel
Cons:	The client is very slow and demands a ton of system resources; is push technology really all that useful?
Location:	ftp://ftp5.netscape.com/pub/communicator/smartupdate
Filename:	nc??win.jar
Status:	Freeware - requires Netscape Communicator 4.0 or later
Company:	Netscape Communications Corporation
Web site:	http://www.netscape.com/flash1/comprod/products/communicator/netcaster.html

Netcaster is a channel-based push technology client for Netscape Communicator that directly competes with Active Channels client of Internet Explorer 4.0. Netcaster is an integrated client of the Communicator suite as of the 4.02 release; alternatively, you can download Netcaster using Communicator's smart update feature. Netcaster was originally designed to be the focus of the next major release of Netscape Navigator (version 5.0). Then came the decision to integrate Netcaster (which was previously designed under the codename of Constellation) into Communicator, presumably for the client to better to compete with the new release of Internet Explorer and its Active Channels client.

The question that many users are asking right now is not which of the two clients is better, but rather how useful and important will push technology ultimately prove to be? The supposed selling point of push technology is that you no longer need to manually request or search for information for a given area of interest. On the other hand, more often than not, push technology gives you far more information than you could ever want or need. Whether a client like Netcaster actually does more to help or hinder the pursuit of information will most likely depend on the individual user. Some users will prefer the push capabilities of a client like Netcaster or Active Channels, while other users will prefer the "old-fashioned" pull technology of a web browser or FTP client. More likely than not, your future will involve some combination of the two.

Like PointCast, Backweb, and other clients that rely on push technology to dynamically deliver information to your desktop, Netcaster allows you to subscribe to content channels that serve roughly the same function as a TV or radio broadcast channel. Netcaster periodically downloads new information from channels to which you have subscribed. This is done in the background while you browse the Web or work on other tasks; then you can later view the entire channel offline at your convenience. Current Netcaster channel providers include *Money Magazine*, *Wired*, CNNfn, CBS SportsLine, Lycos, Infoseek, ABCNews.com, C/Net, and (of course) Netscape. Look for future providers to include the likes of ZDNet, Yahoo, and ESPNet SportsZone.

Netcaster allows you to subscribe to any channel based on Marimba's Castanet technology. This technology enables more than just the delivery of web content — it automatically delivers and updates software applications as well. Users can also download any web site in the background on a scheduled basis using Netcaster. Unlike Internet Explorer, which requires web sites to implement and maintain channel definition format (CDF) files to become an active channel, Netcaster channels do not need any changes to be made to a web site's server or content. This ultimately benefits providers at least as much as it does users because netcasting can be implemented more flexibly using the existing open standards of HTML, Java, and JavaScript. CDF is a proprietary format. Of course, a standardized format used by both Netscape


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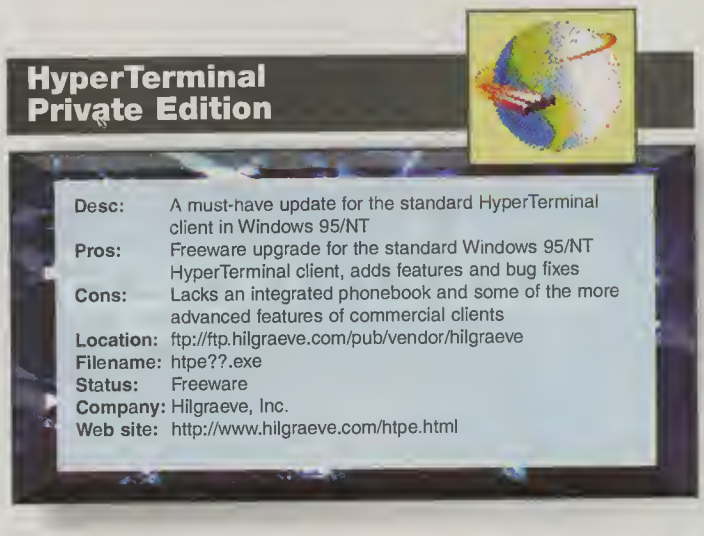
and Microsoft would be better still, but realistically don't expect this to happen anytime soon.

Netcaster also offers a webtop feature that allows you to anchor a subscribed channel to your desktop. This works in a similar fashion to Internet Explorer's Active Desktop except for the fact that there is no actual integration between the Netcaster client and the Windows operating system. This presents one advantage for Netcaster in that it has been designed from the beginning as a cross-platform network interface that will work on more than just Windows platforms. Netcaster and the technology itself are both in their infancy. The previous releases of the client were serious resource hogs and were slower than molasses. Although the official release has benefited from attention to optimization and has shown significant improvements in speed, the client still leaves a lot to be desired in both areas. By the next major release, Netcaster should be on an equal level with the Navigator web browser in terms of speed and efficient use of resources. There is also a shortcoming of attractive, information-rich channels; a situation that should also resolve itself in the near future. Most channels are currently little more than typical web sites with a presentation-like interface. Yet despite its shortcomings, Netcaster and the Active Channels client will most likely to dethrone The PointCast Network. While the day for this has not yet arrived, the signs of a new revolution have already begun to appear and that could spell serious trouble for PointCast and other standalone push clients.



HyperTerminal Private Edition (HTPE) upgrades the standard HyperTerminal program that is included in every copy of Windows 95 and NT 4.0. While differences between the two clients' interfaces are virtually indistinguishable, the Private Edition offers more powerful features. Support for standard Internet-based Telnet sessions, automatic redial after busy signals, Zmodem crash recovery for resuming interrupted file transfers, simple answer mode, TAPI (Telephony API) and Unimodem universal modem support, a backscroll buffer for viewing the text of previous screens, and support for foreign characters are among the best of HTPE's features that you won't find in the standard edition. Perhaps its most important feature is the Zmodem crash recovery capabilities — partial files are always saved so that an aborted transfer can be recovered using Zmodem crash recovery. With HTPE, crash recovery occurs regardless of the file transfer protocol that was initially used to save the file. Another benefit from using the Private Edition is its support for Hilgraeve's CommSense which automatically identifies and sets the correct parameters for connection settings like parity, stop bits, and data bits when accessing new online systems. The Private Edition also offers numerous bug fixes and general feature enhancements over the standard HyperTerminal client. Best of all, Hilgraeve has released the Private Edition as freeware in the hopes that power users will later want to upgrade to the commercial HyperACCESS client after using HTPE.

HyperTerminal Private Edition's freeware status makes it a must-have update for any Windows 95/NT user that regularly works with the standard HyperTerminal client. Still, HTPE lacks some of the more powerful features that are standard in its commercial sibling as well as in most standalone terminal emulation clients. The Private Edition also suffers from the absence of an integrated and easily customizable phonebook. Advanced users looking for more power and convenience can use, Hilgraeve's commercial release, HyperACCESS for Windows 95/NT client. HyperACCESS offers all the same great features as HyperTerminal and adds a multitude of its own essential features, including on-the-fly HyperGuard virus detection for downloaded files, automatic unzipping of compressed files on download, advanced scripting capabilities using languages like Visual Basic and Java, customizable toolbar and keyboard configuration capabilities, support for additional terminal emulators and file transfer protocols, the ability to place and/or answer calls and exchange files with other users, a detailed calling log, an Explorer-like phonebook, and time synchronization capabilities. A "test drive" evaluation release of the **$69** HyperACCESS client has also been made available on the Net. The test drive release includes the same set of features as the commercial release but is limited in two areas — setup information is discarded after each session, and sessions are limited to three calls or one hour. Overall, if you're a regular user of HyperTerminal you'll definitely want to check out the must-have Private Edition update, and if you're an expert user HyperACCESS will likely play into your cards as well.

NetScanTools is a multifunctional Net client that combines many typical UNIX network functions with a variety of essential Net diagnostic tools. The 32-bit application offers seventeen major functions that range from an integrated whois client to a text URL grabber tool to an IDENT server. Although the interface appears cluttered at times and there are no options for resizing any of the windows, you would have a dif-

ficult time finding other apps that offer as many useful features and functions as NetScanTools. The first of the major functions is a name server lookup tool that translates host names to IP addresses and vice versa. One of its most useful functions, NetScanTools' chargen utility gives you an approximate speed for your connection in characters per second (with compression taken into account). The NetScanner utility lists active computers within a range of given IP addresses and can also translate these addresses into their respective host names. Integrated finger (reports information on a user after entering his or her e-mail address), ping (reports on whether another computer is currently up and running on the Net as well as how long it takes to reach it), whois (queries databases for information about domain names, IP address assignments, and individual names), and traceroute (reports the number of hops, or intermediate routers, between your computer and a remote server) tools are four of the most common UNIX network functions and are also four of the best clients offered by NetScanTools.

Additional functions include an IDENT server, echo utility (allows you to verify your own connectivity to the Net), time sync feature (sets your computer's clock using universal time servers), daytime command (gets the local time of day in remote locations), quote server (obtains the "quote of the day" from remote hosts), text URL grabber (the grabber's default option is to list the latest information on Northwest Performance Software's web site), Winsock information reporter (reports on the current version of winsock that your computer is using), and three general purpose functions (socket services, socket protocols, and printing capabilities for most major functions). NetScanTools complements its set of functions with several usability features, including a listbox history for each of the major tools, an online help guide, and an efficient (although not overwhelmingly attractive) interface. Despite its many selling points, there are several areas in which NetScanTools falters. First, while an integrated suite that includes all of these tools in one package is indeed a godsend, experienced users will quickly find that many of NetScanTools' functions are bested by standalone clients. Another area that needs improvement is the NetScanTools online help, which would be much better served by a Windows-style online help system as opposed to the current text file type of guide. However, this only affects the demo version as registered users of NetScanTools can upgrade to a version that does include a Windows-based online help system. And finally, although the tabbed interface makes it easy to quickly switch between the functions, a less cluttered interface would make the client much more attractive. Overall, despite a few drawbacks, if you've been longing for a Net suite that packages all of your favorite diagnostic tools and UNIX network functions, NetScanTools should be the perfect client for you. ◆

TUCOWS

Scott Swedorski

USENET NEWS READERS

The Usenet is still the great wild untamed frontier of the Internet. While debate rages about the future of the Usenet, its popularity grows. And so does Usenet abuse. The Usenet now features over 25,000 newsgroups, and the sheer volume of newsgroup articles has caused some Internet service providers to consider carrying limited feeds, while others look into the option of offering full feeds at additional cost. Some system administrators I have spoken with estimate that more than 40 percent of the content of the Usenet is "noise." Spam, flame wars and newsgroup-bombing have made it difficult, and in some groups impossible, to follow the flow of conversation (if it can be described as such). It can be difficult to keep up with your interests if you don't have a good reader that helps you manage and sort the "signal" from the "noise."

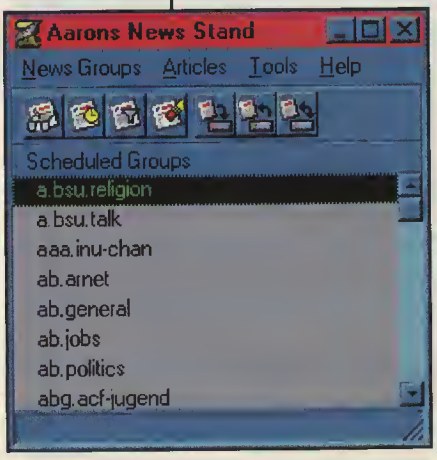
Scott Swedorski is president and founder of TUCOWS, The Ultimate Collection of Winsock Software. He lives in Flint, Michigan with his wife, Vicky and 2 daughters, Emily and Ashley. After joining the army at the tender age of 17, Scott received his degree in Computer Information Systems from Mott College, and received an Honorable Discharge after 8 years service. Scott welcomes input from Internet users and software developers at tucows @tucows.com.

WINDOWS 95

Aaron's News Stand

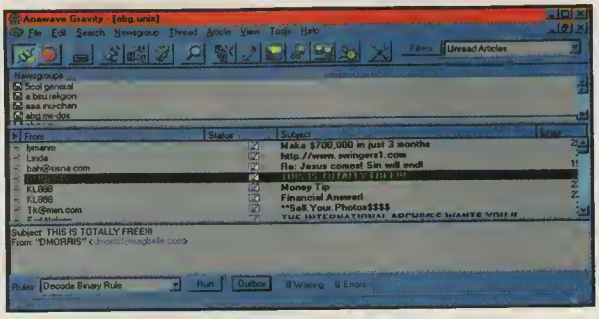
- **Version Number:** 1.0
- **Revision Date:** May 05, 1997
- **Byte Size:** 1,329,956
- **License:** Shareware
- **HomePage:** http://www.ozemail.com.au/~attemt/Aaron.htm
- **Author:** ASM

Aaron's News Stand is a small but flexible freeware news download utility that allows you to download your favorite newsgroups and read them offline. You can make use of extensive filtering to block spam, flame wars and abusive participants, and schedule downloads for less busy times when there is more available bandwidth. Using Windows 95 Dial-up Scripting Tool, you can create a Dial-Up Networking script to automate the connection process, and set times for downloads when you are sleeping or not using your PC, or for times when rates are lower. Aaron's News Stand is small, about 1 MB, and is very easy to configure.



Anawave's Gravity

- Version Number: 1.1 Final Release
- Revision Date: April 24, 1997
- Byte Size: 1,655,257
- License: Shareware
- HomePage: http://www.anawave.com/gravity.html
- Author: Anawave



Anawave's Gravity allows you to view and contribute articles in the form of text and graphics to over 15,000 newsgroups worldwide. Gravity is unique in that it was designed exclusively for the 32-bit Windows 95/NT environment. This design feature provides excellent multitasking capabilities for searching, sorting and completing most news reading tasks in the background. As a result, you get the information that you want — blazingly fast.

Grabber

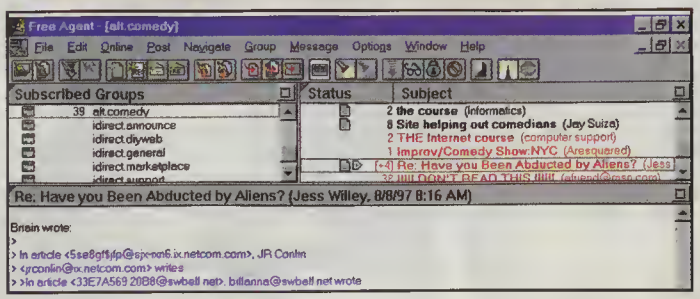
- **Version Number:** 1.1
- **Revision Date:** April 23, 1997
- **Byte Size:** 838,263
- **License:** Shareware
- **HomePage:** http://www.home.aone.net.au/shyde/grabber.htm

Grabber allows you to collect binary Usenet attachments without having to use a news reader. Sounds, pictures, and movies can be automatically decoded and stored without any manual intervention. Grabber includes support for multi-part attachments and MIME or uuencoded files, but the interface can be confusing to new users. It's a challenge to set up if you're not familiar with the intricacies of the Usenet.

WINDOWS 3.X

Free Agent

- **Version Number:** 1.11
- **Revision Date:** April 25, 1996
- **Byte Size:** 1,052,700
- **License:** Freeware
- **Also available:** Windows 95 version
- **HomePage:** http://www.forteinc.com/forte
- **Author:** Forté



Free Agent is a highly popular freeware news reader with an easy-to-use interface. Features include a 100,000+ word customizable dictionary and a binary auto-decoder. It has a filtering feature to ignore or highlight messages based author, subject or length of post. It will automatically launch your browser by clicking on a URL, and do a great deal more.

WinVN

WinVN

- Version Number: 0.99.9 Official Release
- Revision Date: April 5, 1997
- File Name: wv32i999.zip
- Byte Size: 359,976
- License: Freeware
- Also available: Windows 95 version
- HomePage: http://www.ksc.nasa.gov/software/winvn/winvn.html
- Author: Michael Downs

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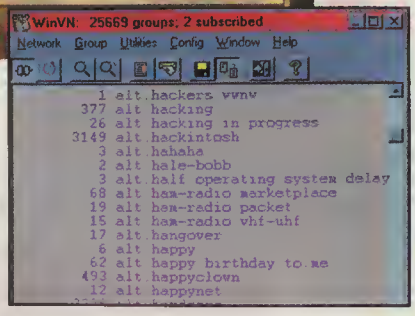
- Author: Michael Downs

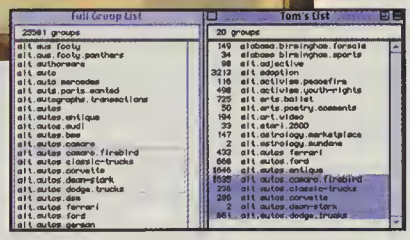


WinVN has all the basic features expected of a well-rounded Usenet reader. WinVN offers a simple point-and-click interface. You can view multiple articles simultaneously and set multiple simultaneous news server connections. While WinVN supports the concept of subscribing to individual newsgroups, its interface allows you to easily browse through unsubscribed groups. It supports limited filtering and search functions at this point, but it's fast and easy to set up. It is updated every month or so, so check back often if this is your pick.

MACINTOSH

Newswatcher

- Version Number: 2.1.6
- Revision Date: January 13, 1997
- Byte Size: 663,199
- License: Freeware
- HomePage: http://charlotte.acns.nwu.edu/jln/jln.html
- Author: John Norstad



Newswatcher is a high-quality NNTP news reader for the Macintosh. Features include threads, automated binary extraction, drag manager support, a built-in editor for articles, built-in reply-by-email capability, optional Internet Config support, and more. There are several different versions on TUCOWS that are enhanced by different users and programmers for a variety of preferences, these versions feature additional tools, such as spelling and speech recognition.

OS/2

Binary News Reader

- **Version Number:** 1.25
- **Revision Date:** June 8th, 1997
- **Byte Size:** 308,368
- **License:** Shareware
- **HomePage:** http://www.bmtmicro.com/catalog/bnr
- **Author:** Ralf Christen

Binary News Reader is an application designed to aid in retrieving and decoding binary files posted in Usenet newsgroups. You can receive and decode marked articles while you are viewing and selecting the next files. Filtering includes the ability to remove article headers containing less than a specified number of lines. Binary News Reader also supports a simple scripting language that enables you to automate almost everything you normally do manually.

Web browsers are doing an increasingly good job with built-in Usenet readers. Netscape and Microsoft offer full-featured news and e-mail readers within Explorer and Communicator. The best way for independent shareware applications to compete is to offer features that are not available in web browsers. Most Usenet readers now offer threading, and an assortment of filters and sorting rules to help cut down on spam and other unwanted messages, but there is room for improvement and expansion of these vital services.

It is a good idea to experiment with a variety of news readers before settling on one. You will find that while most news readers offer similar features, they are often organized with different priorities. Some focus on the binary and file groups, others give more support to discussion and text editing functions.

If you are looking for specific information on the Usenet and want a fast, simple search across the Usenet, drop by DejaNews (`www.dejanews.com`). This site is an excellent resource no matter which Usenet reader you use. You can zero in on exactly the topics that interests you most, and the list of matches gives you an instant idea how popular the topic is, and where to find the conversation when you're not sure where to start.◆

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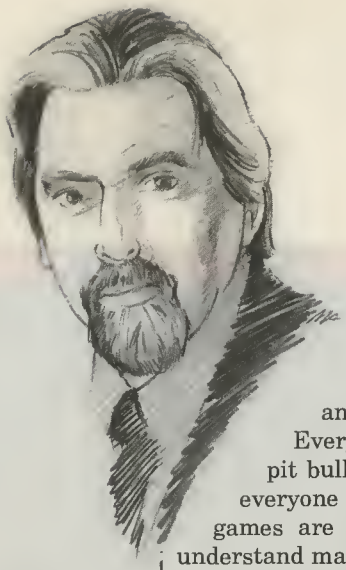

@INTERNET by Thom Stark

CONVENTIONAL WISDOM

Everyone knows it's a mistake to spit into the wind (or to expel any other bodily fluid, for that matter). Everyone knows it's a bad idea to tease a pit bull, a Hell's Angel or an angry cop. And everyone ought to have figured out that Lotto games are actually a tax on people who don't understand mathematics.

All of the above are examples of conventional wisdom—bits of accumulated insight so obvious that anyone ought to have cottoned on to them by the time he or she is old enough to vote. Mind you, that doesn't mean that everyone actually *has* acquired these clues. After all, ignorance is a perfectly curable disease, but stupidity is congenital.

As it turns out, one area in which there isn't much in the way of conventional wisdom is in how to most effectively attend computer trade shows and, you guessed it, conventions.

WHAT'S THE PLAN, MAN?

The first big computer trade show I attended was Comdex, 1989. I learned a number of things from that experience, but, the single most valuable lesson the experience taught me was how important it is to plan ahead. I showed up in Las Vegas with no hotel reservations, no particular agenda and (as it turned out) nowhere near enough cash.

BIG MISTAKES, ALL OF THEM

If you want the best value, you absolutely have to make travel and lodging arrangements well ahead of time. Reservations are especially important, since a lot of hotels are block-booked (which is to say that many organizations—very definitely including the trade show promoter—book a large number of rooms simultaneously) months ahead of time. That does two annoying things: it creates an artificial room shortage and it jacks up the rates.

The best way to get a bargain on airline tickets is to use the services of a consolidator. These folks get great deals on popular flights by buying fistfuls of tickets at bargain rates. They then resell them to their customers at a relatively modest markup, providing better rates than even professional travel agents can manage. Since most computer trade shows take place in major destination cities, such as Atlanta, Las Vegas and San Francisco, there's a good chance your local consolidator will have seats available for you—especially if you manage to get your order in early.

Although a lot of people know about travel consolidators, a lot fewer have heard about hotel consolidators. As you might expect, these folks do for hotel rooms what travel consolidators do for airline tickets. That's especially important because trade show promoters will often block-book all or nearly all the rooms in a city's major hotels and then provide rooms to attendees at "convention booking service" rates which are a bargain only by contrast with the inflated rates those same hotels charge for their few remaining available rooms. With a consolidator, you can usually avoid falling victim to this scam.

Another possible strategy is to make reservations in hotels which are not on the list the trade show promoter provides to you. This requires you do a little more homework, but can often pay off in dramatically lower rates. Yet another strategy is to simply show up without reservations and begin making inquiries about vacancies after 5:00 p.m. or so. There are usually a certain number of no-shows and you may be able to snag a room despite the "No Vacancy" sign. (Note that you won't get any break on the price and that there's no guarantee this strategy will work, however.)

As important as are planning your travel itinerary and lodging, they pale beside the need to plan your attack on the resources of the trade show itself. You can easily waste three full days at a convention, if you don't figure out in advance why you're there and what you want to accomplish.

There are essentially three things that computer trade shows have to offer: direct education, exposure to products and the opportunity to make contacts in the industry. Your agenda may include any or all of these, but you should know ahead of time which are your priorities and try to arrange your schedule to maximize the return you expect on the investment you're making in time and money.

A CLASS ACT

Some trade shows have a lot more to offer in the way of direct education than do others. In general, sessions presented by vendors offer more hype and less usable information than do those presented by independent experts and consultants. (Like any generalization, there are exceptions, but, as generalizations go, it's a useful one.) In my own experience, Microsoft is one of the worst offenders in this regard. With very few exceptions, Microsoft seminars I have attended have been almost purely marketing events and their actual technical content has been low to non-existent.

Thom Stark is president of **Stark Realities**, an Internet business consulting firm based in the San Francisco Bay Area. He also conducts seminars and tutorials about the Internet at trade shows and for business and user groups. He is the author of the serialized online science fiction novel, *"A Season in Methven"*, (`www.starkrealities.com/Methven`). Mr. Stark maintains a non-commercial web site which focuses on IP internetworking technologies and policy issues at `www.starkrealities.com` and his e-mail address is `thom@starkrealities.com`.

On the other hand, the single worst session I ever attended consisted of nearly undiluted technical information. It was a seminar on Apple's then-new remote access services presented by an Apple propeller-head who spent the entire 90 minutes speaking in an unvarying monotone, his eyes fixed on the overhead transparencies in front of him. The room was dark and the acoustics were terrible, and what started out as a full room was practically deserted by the time the poor dweeb turned off the overhead projector.

Ask around. It's important to find out who the good presenters are. You should always fill out the speaker evaluation forms for sessions you attend, too. That's the primary means by which the show promoters learn to distinguish good presenters from bad ones, so, as an investment in the future, it's worth the few minutes it takes.

Unfortunately, other factors have entered into the equation in recent years. Some vendors are willing to pay greedy promoters to let them conduct sessions in an attempt to buy the appearance of legitimacy for their products. Likewise, other greedy promoters have started insisting that presenters sign over the copyrights to their own presentations. No good independent presenter will agree to give up intellectual property rights to his or her presentation, especially since well-crafted, content-rich presentations can take weeks to create.

In many cases, really popular sessions will be presented more than once, so, if two such classes conflict with one another on one day, one of them may be offered on an alternate day and time, allowing you to resolve the conflict. If that doesn't work and you have to pick only one or the other, consider leaving the session you choose a few minutes early to attend the last few minutes of the other. You'll miss most of the presentation, but you may well be able to pick up the handouts. That can be an acceptable substitute, because, if the presenter is any good, the handouts will incorporate most of the key points he or she covered. (Note that, while you can usually buy a CD-ROM that theoretically includes the handouts from every session, there are often omissions and Murphy's Law will see to it that the handouts you wanted will be among those omissions.)

You can usually order an audio tape of any given session, as well. Combine that soundtrack with the appropriate handouts and you'll get nearly the same value as you would from having attended the class in person.

THE FLOOR SHOW

The big, heavily advertised and glitzily promoted conventions, such as Comdex, Internet World and Networld+Interop may seem like the compelling draw, but, if you're primarily interested in seeing specific kinds of products, you may be better off attending a smaller, more focused show, such as — ahem — ISPCon or one of the Networks Expos. The problem with the big shows is that they're zoos, with consumer-oriented, mass-market merchants jammed in cheek-by-jowl with corporate-oriented, big-ticket vendors, all intermixed without rhyme or reason. In particular, Comdex and Internet World also tend to pull very mixed crowds, with a high percentage of civilian rubberneckers diluting the pool of attendees like you—technical folks with a focus and an agenda, needs to fill and money to spend *today*, damnit

THAT'S BAD

It's bad because vendors' booth personnel often can't distinguish one from the other. That means that they waste a lot of time and energy on the tire-kicking tourist who has no intention of buying that new router or high-end concentrator or (insert your product interest here). Uncle Billy is there to see the sights and pick up a few tee shirts and other trade show gimmes, while you have work to do. Especially in those larger, more heterogeneous venues, you're reduced to being a face in the crowd, instead of the center of vendor attention and respect that you so richly deserve to be.

Therefor, before you actually enter the maelstrom, it will pay you to spend some time with the show floor map, planning your attack on the vendors whose products interest you. Particularly in the bigger exhibits, you're probably going to have to spend a certain amount of time just hanging around the booth you've targeted before you can get the attention of one of its inhabitants. Even then, there's a good chance you'll start off talking to someone who doesn't know enough about the technical end of the product to adequately answer your questions and he or she will have to flag the attention of someone who can actually do so. That always takes time, because, thanks to Murphy, the techies are always busy talking to someone else.

If you're comfortable with making a spectacle of yourself, you might try waving a fistful of currency at him or her. It doesn't even have to be large denominations, since the gesture is a conceptual one—you're saying, "I have money to spend."

If flamboyance isn't your style, you'll simply have to bide your time. While you're waiting, you can probably answer some of your questions by reading the product literature that the booth attendants will thrust at you. One of the most valuable lessons that first Comdex experience taught me was to read the literature in the booth—but not to carry it home with me. In fact, I make it a firm rule not to carry paper of any kind home from trade shows. I do so because, after my initial Comdex venture, I arrived home with three big bags bulging with product tearsheets, specifications and the like. Carrying all that paper hurt my hands and strained my shoulders and the prospect of wading through it all to extract the gems from among the dross was so daunting that those bags just sat in a corner, untouched, for six months before I got tired of looking at them and threw them out.

I now insist on having the exhibitors mail their literature to me. It arrives at a rate that allows me to actually read it all and I can keep up with the flow adequately enough not to feel overwhelmed. I can also throw away what doesn't interest me without feeling guilty about pitching the baby out with the bathwater.

Besides, if they don't bother to mail me their literature, it's pretty clear that they didn't really want my business—not to mention that they have problems with customer support and with followthrough. Forewarned is forearmed.

FACE THE FACE

Attending a trade show specifically to make industry contacts is a chancy proposition. Although the movers and shakers

often do attend, typically they're in full headspinning mode. Everyone wants their attention, which means that everyone gets their attention . . .but only a small piece of it.

I wouldn't bother trying to tackle a keynote speaker, for instance. It's usually a waste of time for both of you, unless you're willing to simply ask for his or her business card and plan on actually trying to hold a conversation sometime later, well after the show is over and done. Unless you're Marc Andreessen or Steve Jobs, don't bother giving him or her *your* business card, either. You will have to take the initiative later on.

You're much better off if your goals are more modest.

Trade shows can be very rich sources of contacts—especially technical and marketing contacts—with individuals within organizations with which you do or would like to do regular business. An investment of a little time and/or money can pay big dividends in terms of technical or marketing support contacts that will later permit you to make an end-run around tech support line call queues or to outflank the phalanx of junior marketing types that vendors like to put between you and the folks who have the actual authority to cut quantity purchase deals. If you're on an expense account, consider inviting such prospects out to lunch. It will be a pleasant surprise for them (the expense shoe is usually on the other corporate foot) and it will ensure that they welcome your call further on down the road.

A TWO DRINK MINIMUM

If you're up for a party or six, try to befriend someone with a press badge. As much of a love-hate relationship as vendors have with the computer trade press, we are something of a privileged class. In the press room, we usually get fed and watered for free during the day and we get invitations to all the parties (including some that ordinary mortals never hear about). Very often, we get extra invitations and some of us are willing to share them with real human beings.

Ask and ye may receive.

Mind you, the free food and booze are attractive reasons to attend trade show parties, but the potential contacts and inside information are the real reason to attend them. Not only are they a good place to hobnob with vendor reps, when it gets late and the alcohol has been flowing for a while, you sometimes hear things that exhibitors would never consider revealing when they were sober.

Finally, whether you go to parties or not, keep in mind that you're going to be spending long hours standing and walking on unyielding concrete. So, regardless of whether your style is a suit and tie or a tee shirt and jeans, everybody knows you should make sure you wear comfortable shoes with good arch support.

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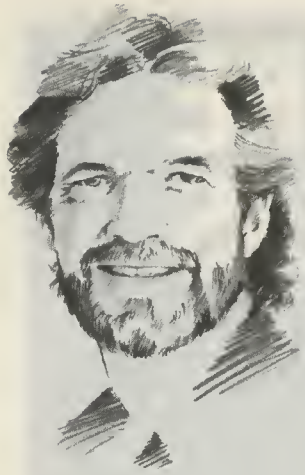

MANNING THE WIRES

by Ric Manning

SPECIALTY WEB SITES

Cynthia Typaldos doesn't play golf. But when she and her husband decided they wanted to create a web-based business, she had no trouble identifying golfers as her target audience.

Golfers are an upscale group, who have extra money to spend and access to a computer. Golf also is an international sport, ideal for the global reach of the Internet

"And golf is very social thing," she said. Golfers like to talk about golf, about courses they've played, and about their games and their scores.

GolfWeb (`www.golfweb.com`) was launched 1994 with the goal of providing "Everything Golf on the World Wide Web." The site offers news and information, including professional and amateur tournament scores, golf news reports, fantasy leagues and a huge database of course information. It also has an online pro shop that offers discount prices on golf merchandise.

But that is just the beginning. Offering news and information on the Web builds traffic and trust. "When you have that, you can sell people things," Typaldos said. The site has banner ads from several big-name sponsors, including golf equipment makers.

It also has an online pro shop that offers discount prices on golf merchandise.

By most measures, GolfWeb is already successful. The main site claims 2 million accesses (hits) per day and more than 5 million when major tournaments are underway. Visitors arrive from more than 100 countries or they visit GolfWeb's auxiliary sites serving Japan, Europe, Australia, Asia and Canada.

GolfWeb has created partnerships with the PGA European Tour, with golf legend Jack Nicklaus and with the National Golf Foundation (NGF). The Knight-Ridder newspaper chain recently became one of GolfWeb's major investors.

But Typaldos said she knew Golfweb wouldn't be a money-maker until it offered something that people will pay for. Her solution is the GolfWeb Player's Club, a subscriber-supported service that will give golfers personalized attention.

Typaldos said she learned the importance of personal connections when she was head of software standards for Sun Microsystems.

"When you develop a software application, it has to be compelling, but it also needs network externality," she said. "Every time someone who buys it and uses it, that adds value. Take Microsoft Word, for example. If you want to exchange documents, you want others to also use it. If you have the first telephone, it's not very useful until other people get one." For **$29.95** a year, club members get access to a variety of services:

- The Scorer's Tent, where subscribers can post their scores and get a personal golf handicap.
- The Leaderboard, where golfers can compare game play against others in a group environment.
- The Performance Lab, which members can have their performance analyzed and chart their personal golf statistics.
- The Teaching Pro, a place for online lessons and personalized tips.
- The Member's Lounge, a spot to meet and mingle.

More important, members can also use the club to connect with other golfers nearby or on the other side of the world.

"The core of the Player's Club is really the group," said Typaldos. "When you join, you are put into a group and you start to meet other people."

A golfer might use the club to find another player in his or her hometown who has a similar skill level, or connect with golfers in other regions to swap advice and tips on courses.

Group members also can use the club to compete with each other by comparing scores on similar courses.

Typaldos is counting on members to start their own groups and get their friends and business associates to join.

"It's a snowball effect," said Typaldos, "The group becomes more valuable to you if you know the other members. That gives you a vested interest in getting people to join."

To help the process, GolfWeb plans to offer membership packages to companies that would pass them on to

Ric Manning is a columnist and web master for ***The Courier-Journal*** in Louisville, Kentucky. His weekly column covers computers, consumer electronics and the Internet and is distributed to more than 100 newspapers by the Gannett News Service. It's also available on the World Wide Web at **http://courier-journal.com/gizweb**.

Ric was the founding editor of ***Plumb*** and ***Bulletin Board Systems,*** two newsletters that covered the BBS arena in the early 1980s. His freelance work has appeared in several magazines including ***PC/Computing, Mobile Office, PC Week*** and ***Home Office Computing.*** Ric lives in Southern Indiana with his wife, two children and two Weimaraner dogs.

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employees or clients. "Say you're a brokerage house. You might take customers out to play golf. This is something else you can give them," Typaldos said.

So far, the Player's Club has attracted several hundred members from 54 countries. That's a good start, Typaldos said, but she's aiming high. "Our goal," she said, "is to build a golf application that has the domination of Word."

SPINNING CD SITES

Give MCI credit for arriving early at the party. When the long-distance phone company began dabbling in web publishing a couple of years ago, one of its first projects was an online music store. Visitors could browse a large collection of CDs and place orders from their computer screens.

But MCI put on its coat and headed for the door before the band started to play. When early sales didn't materialize, the company pulled the plug.

Now online record stores look like they just might be they in tune with the times. According to a report by Jupiter Communications, revenue from online record sales could reach **$18 million** this year. By 2002, online record sales are expected to account for 7.5 percent of the global market.

Those numbers are catching the attention of the companies that produce CDs. Until now, they've shied away from selling directly to music buyers for fear of angering all those record shops in the malls.

But now, Sony (`www.sony.com`) is selling discs directly from its Internet sites and other major label distributors, including Warner Music and BMG, are making plans to jump in. Even some retailers, notably Tower Records and Camelot Music, are eyeing the Web.

The two leading online music stores are CDNow (`www.cdnow.com`), which was started three years ago by twin brothers in the basement of their parents' home, and Music Boulevard (`www.musicblvd.com`), a company that is as interested in delivering music digitally as it is in selling mail-order CDs. Both sites take a similar approach to online shopping. Visitors open an account and browse among the thousands of titles for sale. See something you want? Drop it in your "shopping cart" and pony up your credit card at the checkout counter.

Music Boulevard claims 150,000 titles in stock, CDNow says it has 250,000, including videos. A typical new release **$12.99** at Music Boulevard, **$12.72** at CDNow. Both services charge about **$2.50** to ship a single CD, but Music Boulevard often waives shipping charges for special sales.

Both systems offer song lists and other information about the records they sell. But Music Boulevard is more likely to also have a picture of the album cover and a comment or short review. Both systems also offer RealAudio clips from many of the records they stock. However, Music Boulevard serves the high-bandwidth crowd with high-fidelity MPEG clips in two versions: small (150K) and large (450K).

With its partner N2K Inc. (`www.n2k.com`), Music Boulevard is clearly planning for the day when music could be delivered, as well as sold, online. The site now sells single tracks for 99 cents each from artists such as jazz pianist Chick Corea and former Police drummer Stewart Copeland. Earlier this year N2K President and record producer Phil Ramone produced a live recording of artist Blake Morgan, then had it for sale on the Web within a couple of hours.◆

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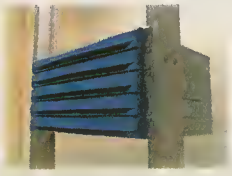

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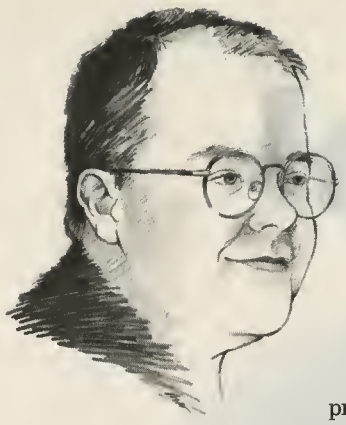


EURO NEWS

Richard Baguley

THE ECONOMICS OF BEING A U.K. ISP

At the recent ISPCon in San Francisco, I talked with a lot of U.S. service providers. As you might expect, most were curious about the U.K. scene, but one aspect of the U.K. Internet seemed to be of particular interest — how to get national coverage.

Richard Baguley is the Technical Editor of *Internet Magazine*, the U.K.'s best selling Internet magazine (`www.emap.com/internet`). As such, he spends lots of time fiddling with expensive bits of equipment (although, much to his annoyance, they usually ask for the bits back) and trying to look like he knows what he's doing. He also runs the Internet service provider tests that appear in the magazine.

His writing has appeared in numerous places, such as *Mac Format*, *Wired News* and *WebMaster*. He is an ex-editor of *Amiga Shopper* (which one ex-contributor described as being "enthusiastically dull") and *Internet Today*.

He lives in North London and drinks beer (with an occasional cup of tea on the side). He can be contacted at `baggers@baggers.com`.

For an ISP in the U.K., it is extremely easy to get national call coverage, because your customers can connect to you for the price of a local call from anywhere in the U.K. (with the exception of the Channel Islands). The ISP doesn't need to set up POPs all over the country — its customers can connect from anywhere by simply dialing one number for a local call rate of around **70 pence** (**$1.30**) an hour.

It works this way: the ISP goes to a company such as BT (`www.bt.com`), Mercury (`www.mercury.co.uk`, now part of the Cable and Wireless group) or Energis (`www.energis.co.uk`) and orders a few phone lines on their national call services (the names and precise details of the service vary from company to company). The telco then uses its telephone network to pick up the calls from the exchanges near the customer and delivers them to the ISP. The companies that offer this are all large telcos, so they all have their own extensive networks. Energis, for instance, is linked with the company that runs the national electricity grid, so its fiber optic network runs alongside the power cables suspended over so many picturesque parts of the English countryside. So the next time you're playing tourist in some U.K. beauty spot, remember that there are probably several thousand telephone calls and loads of Internet traffic passing over that power line that is getting in the way of your photos of the countryside.

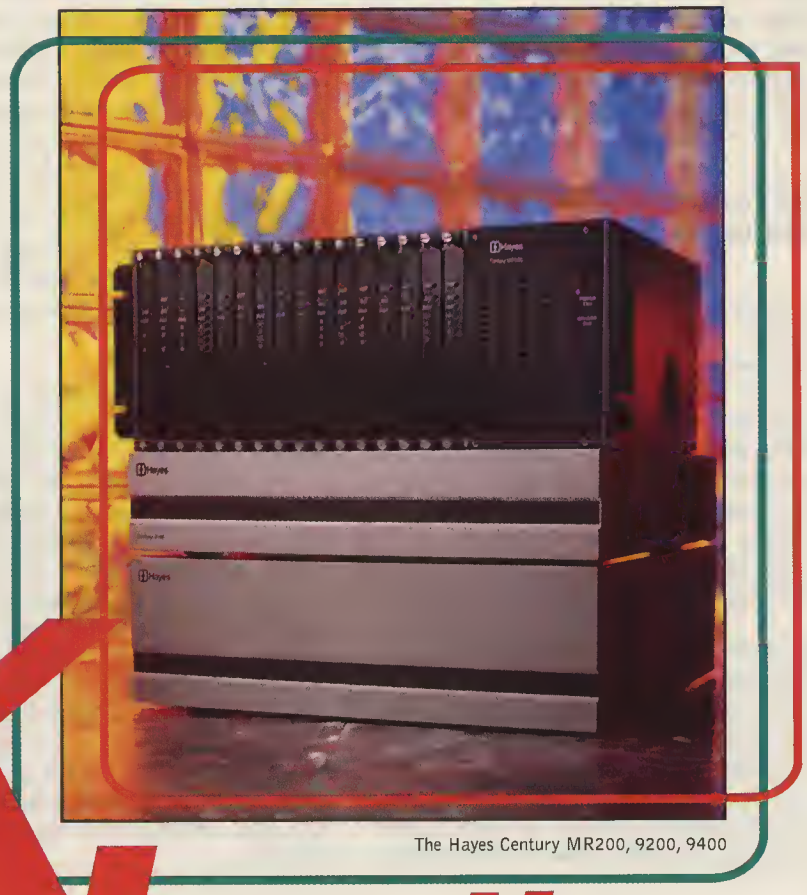
Although it sounds horrendously expensive, it actually works out to be pretty cheap for the service providers. Energis, for instance, charge, around **£600** (approx. **$930**) a year per line for its inbound service. You have to take a minimum of thirty lines, but this works out at a very reasonable **£50** (approx. **$78**) per line per month, and they will even lower the price a bit if you haggle and buy more than thirty. The company can deliver the calls in either analog or digital format, so it's easy to tie them in with existing systems and modem racks. Stiff competition between the various companies who offer this sort of service also helps to keep the prices down, and it wouldn't work out to be too expensive to buy in these services from two different providers to ensure no single point of failure. The companies also don't charge on a per-use basis — the flat fee buys you as many incoming calls as you can handle. Thanks to the fact that local calls in the U.K. still cost around **70 pence** per hour, people don't tend to stay logged on for too long. This means that ISPs can have higher user-to-modem ratios than the U.S. — most run at somewhere between 10:1 and 20:1, although some claim ratios of below 10:1. The ISPs love it because it gets them national coverage for a relatively low outlay, and the telcos like it because they can make money out of the spare capacity they have on their networks.

When you first look at it, this would seem to be a great boon for the small ISPs — they can get national coverage for a fraction of the price of setting up a POP in each major town. All they need to do is to plug the telco's bit of copper or plastic into the back of their modem rack and they're away. However, it has actually worked out to be something of a problem for smaller providers. What it effectively does is to take away their major selling point.

Before this system was introduced, large companies, such as Demon or Pipex, would have only been realistically able to offer a service in a region where they had POPs. With telephone calls in the U.K. being so expensive, users don't want to pay for long-distance phone calls to access the Internet. This, rather like the situation in the U.S., left large sections of the country where it wasn't worthwhile for the large companies to offer a service because they didn't feel there was enough potential business to justify the investment of setting up a POP. This left the area open for a smaller company, with lower overheads, to come in and pick up this business.

However, once these national coverage local call services were introduced, the big companies could effectively compete — they didn't care where the calls were coming from, as the networks run by the telcos delivered them all directly into the network. This means that the local, smaller provider lost its advantage — it is no longer the only company offering Internet access for the price of a local phone call. A large company can afford marketing and advertising on a regional and a national basis.

Actually, that's a rather apocalyptic view of things. Although many smaller ISPs have gone out of business or are being bought out by the big boys, there is still a thriving scene, with over 250 providers, most of which are offering full coverage of the U.K. for the



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for the local call rate. Many of them have been forced to redefine who they sell to, so recently a large number of smaller ISPs have found new, niche markets to sell into, with differing levels of success.

NETWORK SOLUTIONS GET IT WRONG (AGAIN)

I was also rather intrigued to hear Don Telage of Network Solutions describe the problems of Internet governance as a "U.S. Issue" at the ISPCon, and propose that the appropriate body to deal with these problems was the U.S. government. At first, I just put it down to the usual U.S. arrogance about how all things hi-tech were developed in the U.S., but I got more and more annoyed the more I thought about it.

I could point out that the World Wide Web, the very thing that has guaranteed Network Solutions its large profits, was developed by an Englishman working in Switzerland. I could point out how the U.K. has pioneered a relatively efficient system for administering domain names that doesn't grant a monopoly to any one commercial operation. I could remind him that many large companies (such as Microsoft) are investing large sums in research facilities in Europe, often in preference to expanding their facilities in the U.S. I could even drop in the fact that a U.S.-based magazine like *Boardwatch* thinks there is enough happening in Europe to justify paying me vast amounts of money to write this column. However, this would be committing his same mistake.

The fact of the matter is that the Internet is an international phenomenon and any changes made will have a world wide impact. As such, they should be designed and debated on an international level. Even if the majority of Internet users are in the U.S., the rest of the world has the right to have a say in decisions that will have an impact on their lives. The Internet is becoming an increasingly important tool for international business, and the last thing we need is for one country to decide that they want to decide the rules of the game and that they'll take the ball away if the rest of us don't like it. . .

COUNCIL GIVES UP ON CHILD ABUSE REPORT

The U.K. county council, which had been taking legal action left, right and center to suppress a controversial report, has given up. You can read the full story in my August column in *Boardwatch*, but the long and short of it that the council had been taking legal action against a group of freelance journalists who originally put the report on their web site. They had also threatened several people who had mirrored the report with legal action, claiming a breach of their copyright. The report was into how a prominent case of child abuse was handled by the council's social services department.

Now, the council has given up, claiming that they don't have the time or the money to pursue the case. It has even paid the legal fees of one of the journalists. It seems that, as I predicted, the prospect of having to pursue legal action against people in the U.K., the U.S., Canada, Germany, and Holland was a bit more than it could handle. And no doubt other mirrored versions of the site would have sprung up if they had pursued the action.

Tim Bell, the chief of the social services department in Nottingham commented that, "We have been faced with a technology running at a pace which exceeds the law's ability to adopt to deal with it and the best interests of Nottinghamshire people would not be served by running up large bills in difficult areas of law." Like many people, he demonstrates an understandable fear of something he doesn't really understand — it must be scary to see copies of a report highly critical of your organization popping up all over the world. He also rather misses the point — there are already well established laws that apply to the Internet. There have already been several cases where U.K. laws have been applied to the Internet without problems — the council managed to get an injunction against the journalists with no great difficulty. Problems for the laws start to arise when you get problems of jurisdiction — nobody has yet really answered the question of whose sets of laws apply when a web page can be created in one country and instantly accessed and copied in another country thousands of miles (in both a geographical and legal sense) away. . . ◆

WIRELESS Data Developments

by Steve Stroh

WIRELESS VENDOR PROFILES

I am writing this column several days after ISPCon '97 in San Francisco. There were several wireless vendors at ISPCon doing presentations or exhibiting. The significant factor with these companies is that they were interested enough in the ISP market to come to ISPCon (some just barely made it, but they were there).

There were two types of wireless vendors at ISPCon — those that partner with ISPs in some way, and those that sell equipment to ISPs. There were a few that did both.

BROADLINK.COM

BroadLink.com (`www.broadlink.com`) sells wireless Internet access to end-users via referrals from ISPs. BroadLink.com comes from a radio communications background, not a computer networking background. I rate this as a plus since, in my mind, wireless networking is about 70 percent wireless, and 30 percent networking. Both are important, but the "wireless" is more fundamental — it is, after all, the physical layer. BroadLink.com's focus seems to be providing wireless Internet access to businesses, and is able to provide the initial Internet access much more rapidly than conventional wired Internet access. BroadLink.com is referred to a business by an ISP, it then provides wireless Internet access to it, but does not provide a link between the referring ISP and the business. Currently, BroadLink.com is only operating in a few limited markets.

RADIOCONNECT CORPORATION

RadioConnect (`www.radioconnect.com`) sells equipment. Its wireless remote office links (WROL) look like they're made to be mounted out of doors, on towers — their packaging is quite impressive. WROL has not yet been approved by the FCC, but it has a potential range of 32 kilometers, operating on the 2.4 GHz unlicensed band with a link speed of 800 Kbps. WROL consists of an outdoor and an indoor unit separated by as much as 100 meters (all RF is contained in the outdoor unit). Indicators for performance and link alignment are built into the outdoor unit — a very nice touch! RadioConnect's antenna uses circular polarization, which is a superior, but complicated antenna technique commonly used in satellite communication. The WROL outdoor unit can have an omnidirectional or a highly directional antenna installed. In addition to the usual 10baseT and 10base2 LAN connections, WROL offers six telephone lines, which can be expanded to 18. The bandwidth required for the telephone lines is dynamically subtracted from the total bandwidth available and returned when the phone line is no longer in use. WROL is an impressive system for point-to-point links.

Steve Stroh learned wireless TCP/IP networking as an amateur radio operator (callsign N8GNJ). He's one of the founding members of the *Puget Sound Amateur Radio TCP/IP Group* and is secretary for *Tucson Amateur Packet Radio (TAPR)*, a national not-for-profit amateur radio research and development corporation that specializes in wireless digital communications.

Professionally, he's a NetWare and Windows NT administrator for a large company. He's done battle with UNIX a few too many times and mostly lost, so now he's learning Linux and BSDi in preparation for his next UNIX challenge. Steve lives in Wood-inville, Washington (in the shadow of Redmond) with wife Tina and daughter Merideth. He can be reached at `steve@stroh pub.com`.

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AIRDATA WIMAN SYSTEMS

Airdata WIMAN Systems, Inc (`www.wiman.net`) sells the WIMAN, which stands for wireless metropolitan area network. AWS works with ISPs to deploy WIMAN service in exclusive territories. Multiple WIMAN units are mounted on towers and connect in series to provide multiple channels of service. Like RadioConnect's outdoor hardware, the WIMAN units look like they're made to be mounted out of doors, on towers. Antennas on each WIMAN unit can be either directional or omnidirectional, and WIMAN units can be used in point-to-point or point-to-multipoint (master/slave) modes. WIMAN operates in the 2.4 GHz unlicensed band and has a link speed of 115.2 to 128 Kbps. In point-to-multipoint mode, the multipoint units are all synchronized to transmit at the same time to avoid "desensing" nearby units that may otherwise be receiving. Airdata claims to sell the hardware at cost, but requires an ongoing software license fee for each unit. Those who plan to use WIMAN units for point-to-point links can pay a higher purchase price up front with no further software license fee payments.

WARP DRIVE NETWORKS

Warp Drive (`www.warpdrive.net`) operates on television broadcast channels (VHF/UHF) or MDS television broadcast channels at 128, 256, 512 Kbps, or 1.544 Mbps. Warp Drive's system literally broadcasts high-speed Internet data over a television channel. Warp Drive Networks owns the transmitter and receivers. At present, Warp Drive requires a conventional wired Internet connection for uplink to the Internet. The company is, however, working on a two-way wireless data system. Notable with Warp Drive is that it is ideal for IP multicast use, and it allows semi-dynamic bandwidth "bursting" by users who wish to change their allocated bandwidth through a web page. Warp Drive is currently operational in the San Jose, California and Seattle, Washington areas. I like Warp Drive because it makes effective use of television spectrum for something other than *M*A*S*H* reruns, soap operas, and infomercials. Thus, it loosens the choke-hold of the television broadcasters on that large, precious chunk of spectrum. It's my guess that a Warp Drive system looks like a pretty attractive neighbor to television broadcasters because it is still a broadcast user of the television spectrum, and shows them a lucrative use for the "excess" bandwidth that they will all have available after the conversion to fully digital (but not High Definition) television broadcasts.

WI-LAN

Wi-LAN (`www.wi-lan.com`) primarily sells equipment to ISPs. Its focus has been on the educational market of school districts opting for wireless networking — with a initial fixed cost but no ongoing charges — rather than a wired network infrastructure with ongoing charges. Wi-LAN offers several impressive case studies and actual experience deploying wireless wide area networks under real-world conditions. Wi-LAN's Hopper Plus is a wireless Ethernet bridge operating at 1.5 Mbps and 1.9 Mbps. Versions of the Hopper Plus are available for the 902 MHz and 2.4 GHz bands. I asked a Wi-LAN rep how effectively the Hopper Plus deals with the point-to-multipoint issue. She replied that the Hopper Plus uses a token-passing system that only has one transmitter transmitting at any given time under the direction of the "master" node — an approach that made a lot of sense to me.

Effective operation of wireless data

units in a point-to-multipoint (often referred to as master/multiple slave mode) network has traditionally been a weak point for many vendors of wireless data systems. Typically, most vendors have not implemented an effective point-to-multipoint protocol to insure each multipoint unit equal access to the available bandwidth. The overall performance of the system suffers because excessive retries are then required. This is especially critical in wireless data systems where one node cannot see some other nodes in the network because of terrain obstacles or other factors such as distance. Most wireless data vendors' point-to-multipoint systems do work. . .but not always optimally. Vendors who implement effective point-to-multipoint techniques have a decided advantage over those that do not. Unfortunately, there's not yet any (that I'm aware of) objective testing of how well point-to-multipoint techniques are implemented in various wireless data systems. How well the vendor handles point-to-multipoint is definitely something to ask about when evaluating wireless data systems. ◆

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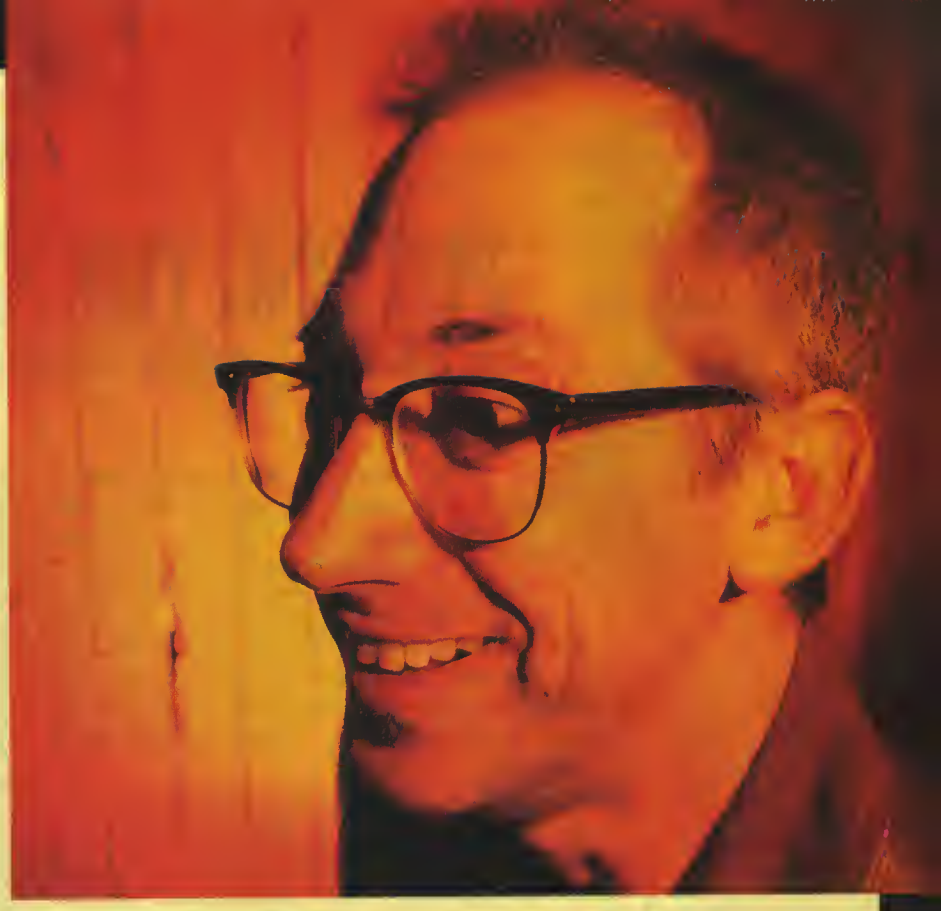

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PUTTING THE NET TO WORK

by Durant Imboden

GLOBALINK POWER TRANSLATOR

If you're in an Internet-related business—or even if you're a serious Internet hobbyist—there are times when you receive e-mail in another language, would like to send a message to a person overseas, or wish you could read the text on a foreign-language web site. In short, you're a prospect for a new category of software: translation programs like Power Translator from Globalink (`www.globalink.com`).

Power Translator comes in several versions. I tested Power Translator 6.0 for Windows 95 and NT, which allows English-speaking users to translate to or from Spanish, French, Italian, and German. The program lists for **$169.95** and has a street price of **$149.95** at major vendors like CompUSA and Tiger Software. Additional single-language "subject dictionaries" for banking, computer science, legal, automotive, medical/pharmaceutical, narcotics enforcement, and other specialized applications cost **$89.95** each.

NOT JUST A HOMEWORK HELPER

Although cheating on school homework might be the most obvious use for Power Translator, the program's usefulness goes beyond translating *"la plume de ma tante."* Its features include

•*Translation "projects."* Type your text (or paste it via the windows clipboard) and translate it on a Power Translator project screen. You can also import files from major word processors and save completed translations in Microsoft Write, RTF, or text format. While working, you can translate in a variety of ways: e.g, one sentence at a time or when you've finished working on the document. An "interactive" mode gives you hands-on control over the translation by letting you choose between possible phrases, force a literal translation for a word, or prevent a word from being translated. (The interactive mode is obviously intended for users who have some familiarity with the target language.)

•*E-mail translation.* A "translation utility" places an icon in the title bar of your e-mail program. Highlight the text in a message, click the icon, and your text is translated automatically. You can then overwrite the original text, copy the translation to the clipboard, or print the translated message.

•*Word-processor translations.* By defaut, Power Translator installs a translation menu into Microsoft Word or WordPerfect for Windows during setup. This makes it easy to translate paragraphs or documents without opening a separate application.

•*Web translation.* This module, called Globalink Web Translator, is also available as a separate application for **$29.95**. It adds a translation toolbar to Netscape Navigator or Internet Ex- plorer so world-wandering web surfers can read foreign-language HTML documents while browsing

•*Conversations.* A "conversation utility" gives laptop users the ability to translate short phrases, sentences, or blocks of text on the fly. For example, a tongue-tied American tourist in Mexico could type "Hello," whereupon the program would display "1. Hello" and "1. Hola" as a sentence pair. (The utility of this feature depends on the situation; calling "Taxi" by waving a notebook PC at a passing cab might be less productive than the traditional whistle or wave.)

The program also includes tools to help with writing and translation, including a dictionary editor and an accent-entry utility that makes it easier to type characters from European alphabets.

PUTTING THE TRANSLATOR TO THE TEST

After glancing through the 168-page manual, I slipped the Power Translator CD into my computer and ran Setup. I had a moment of frustration when I couldn't add or remove items from the program options. A call to Globalink tech support revealed that the checkboxes were invisible, and that I could select or deselect items by clicking where I thought the checkboxes should be. This worked, allowing me to install my choice of language dictionaries and prevent the default installation of AT&T WorldNet. (Sorry, AT&T.)

For my first task, I entered English-language text in Microsoft Word 97 and translated it into Italian. I used a selection from Cheryl Durant's *Bittersweet in Bern*, a romance novel published by Silhouette Books:

> *"Something warm and furry moved against Gabi's leg. She looked down and saw Winifred, the sheepdog, beaming up at her with soft brown eyes. For a moment she had a sinking feeling, convinced that the inter-*

Durant Imboden is a freelance writer whose credentials include published novels and nonfiction, fiction editing and staff writing for ***Playboy***, travel writing for corporate clients, and representing authors at a New York literary agency. He currently manages the Writing Forum on The Microsoft Network and produces a "Venice for Visitors" web site at **http://govenice.miningco.com**, and helps his wife with "Switzerland for Visitors" at **http://goswitzerland.miningco.com**. **Mail To: imboden@writing.org**

ruption would bring Peter to his senses. If he withdrew now... Please don't let him! she begged silently, trying to invoke a telepathic power over the man whose face was only now lifting itself with obvious reluctance from the perfumed skin between her breasts."

After typing the passage, I clicked the "Translation" menu, selected "Direction," and chose "English/Italian." I then highlighted the text, clicked "Selection," and let Power Translator take over. The resulting translation looked acceptable to my Anglo-Saxon eyes, but it was different from (if more literal than) the equivalent scene in an Italian book publisher's edition of the novel, *Le parole non dette*. Out of idle curiosity, I ran the Italian publisher's version of the scene through Power Translator, selecting the "Italian/English" option this time. The result appeared to have been written by the author of a Japanese camera manual:

"Anything of heat grazed the ankle to her, it looked toward the lower part and she/he saw Winifred that made for her the parties and it seemed to give the welcome one to her. Par an instant was felt lost, convinced that that interruption would have broken the enchantment... If Peter were one drawn back now. . . She/he didn't want that it happened and it looked it... reluctant, the man was lifting the head from her breast."

I realized that I'd expected too much from Power Translator, since Globalink doesn't market the program as a professional tool for literary texts. Abandoning *Bittersweet in Bern / La parole non detta*, I opened the "project" module again and typed a more straightforward passage:

"My name is Durant Imboden. I manage the Writing Forum on MSN. I also produce "Venice for Visitors" at http://govenice.miningco.com. My wife has a Web site titled "Switzerland for Visitors" at http://goswitzerland.miningco.com."

Next, I wrote my own German version of the same text:

Ich heiße Durant Imboden. Ich führe die Schriftstellersgruppe auf MSN. Auch produziere ich "Venedig für Besucher" bei http://govenice.miningco.com. Meine Frau hat ein Web-Site, "die Schweiz für Besucher," bei http://goswitzerland.miningco.com.

I then let Power Translator come up with its German version of my original English-language statement:

"Mein Name ist Durant Imboden. Ich leite das schreibend Forum auf MSN. Ich produziere auch-' Venedig für Besucher' bei http://govenice.miningco.com. Meine Frau läßt eine Spinnwebe-Stelle betiteln-' die Schweiz für Besucher' bei http://goswitzerland.miningco.com."

The differences were modest, and the passage could be understood—even though "schreibend Forum" suggested that the forum itself was an author, and German web masters normally use "Website" or "Web-site" rather than the literally translated "Spinnwebe-Stelle.""

Translating my own German back into English with Power Translator yielded a similarly clumsy but intelligible result:

> *"I am called Durant Imboden. I lead the author-group on MSN. Also I produce Venice for visitors with http://govenice.miningco.com. My wife has a Web-Site, Switzerland for visitors, with http://goswitzerland.miningco.com."*

Not being one to give up easily, I tried a passage that could be translated literally and didn't include any industry jargon:

> *"Once there were three bears: Papa Bear, Mama Bear, and Baby Bear. The three bears lived in a house in the forest. One day, when they were gathering berries, a girl named Goldilocks walked into their house and looked around. She ate their porridge and slept in their beds."*

Power Translator converted this paragraph into:

> *"Einmal gab es drei Bären: Papa Bär, Mutti Bär, und Baby-Bär. Die drei Bären wohnten in einem Haus im Wald. Ein Tag, wenn sie Beeren sammelten, nannte ein Mädchen, Goldilocks ging in ihr Haus und sah um. Sie aß ihre Hafergrütze und schlief in ihren Betten."*

This time, Power Translator had been confused by the word "named." It assumed that Goldilocks had *named* something rather than *being* named something. Things got even more confused when I translated the paragraph back into English:

> *"Once there were three bears: dad bear, mom bear, and baby-bear. The three bears lived in a house in the forest. A day, if they collected berries, a girl named, went Goldilocks into her/its/their house and looked around. She/it ate her/its/their porridge and slept in her/its/their beds."*

Setting the project module aside, I turned to the Globalink Web Translator. After getting an error message when I tried to translate an index.html page with multiple teasers and links, I opened a straight text story from a German newspaper, *Die Welt*. Web Translator scanned the story, and within 30 or 40 seconds it delivered a translation worthy of its **$29.95** list price:

"TOURISM-LULL IN AUSTRIA"

"Vienna – in Austria's tourism-sorts, spoils once from summery GGäste-Invasionen, despair makes itself wide . From the Wörthersee up to the salt-chamber-property, from Tyrol until into the Styria stayed out the German vacationers this year before all. Where bathtubs were rented in the midsummer itself to sleeping to quarters-seekers once, usually yawning emptiness was in this year. "

By now, I was beginning to find Power Translator's stylistic blunders rather endearing, like the dialogue of the title character in Leo Rosten's classic novel, *The Education of Hyman Kaplan*. I decided to wrap up my testing with the e-mail translation utility. For a test message, I chose a slice of spam that had arrived in my Eudora Pro inbox:

> *"Live Interactive Video Sex! Wouldn't you like to see a Live Girl on your computer Screen??? Now the girl can see you as well – Featuring Two way video. This video service is not like others. There is no video delay, and the screen is crystal clear and big, just like a T.V. You can also talk to her on a voice line as you are watching her do it all just for you. Our Live video is so good that we are giving you 5 Free min. to show you that we are the best."*

Power Translator turned this into a French message that began:

> *"Le Sexe de la Vidéo Interactif vivant! Ne veuillez pas vous aimez voir une Fille Vivante sur votre Écran de l'ordinateur???"*

When I translated the French-language sales pitch back into English, the text read as if it had been scribbled by a Korean software engineer on an Apple Newton:

> *"The Sex of the Interactive Video living.*
>
> *"Please not you like to see a Living Girl on your Screen of the computer??? Now the girl can see you like well - to Characterize Two video of the path. This service of the video is not as other. There is not no time limit of the video, and the screen is clear and big crystal, only like a T.V. You can also speak to it on a line of the voice as you look at it to only make all for you. Our Living video is so good that we give you 5 Free mins. to show you that we are the better."*

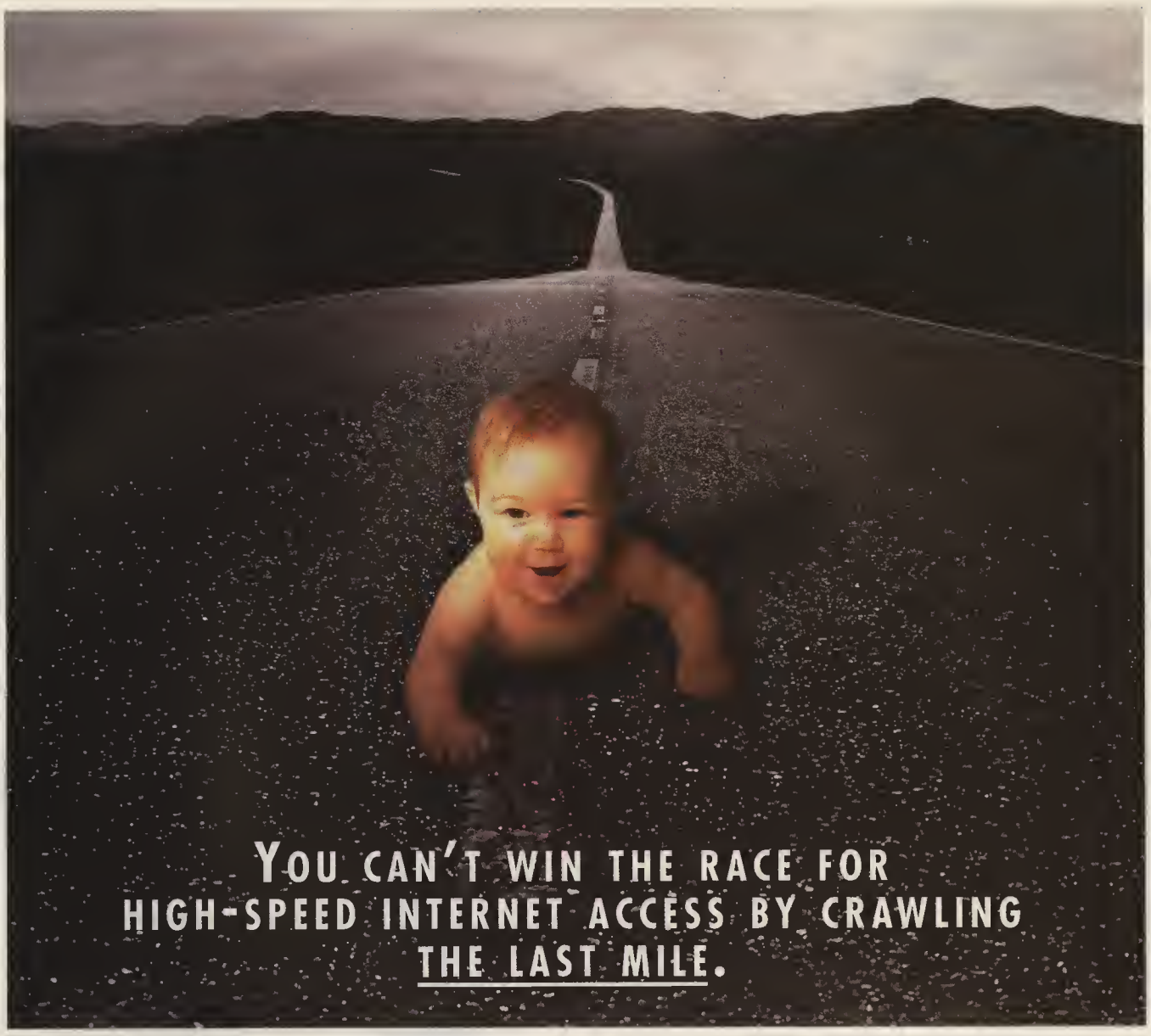
BUT SERIOUSLY, FOLKS...

Okay, so I've been a little unfair. Each of these examples distorts Power Translator's weaknesses by translating from English into a foreign language, then retranslating an already imperfect result. Still, it's fairly obvious that translation software is still in its infancy—much like handwriting or speech recognition, which show promise but can be frustrating to users who expect 100 percent accuracy.

Is Globalink Power Translator worth **$149.95**? It might be, if you receive a lot of documents in Spanish, French, Italian, or German and can't afford the expensive services of a professional translator. You don't need perfection if you're merely trying to read a word-processing file, an e-mail, or a web page.

The program may also be worthwhile for translating documents into a foreign language, providing you or someone on your staff is familiar enough with the target language to repair the inevitable mistakes in word choice and sentence structure.

Finally, the standalone version of Globalink Web Translator is a steal, even at the **$29.95** list price—and it's definitely a "must buy" if you surf European web pages and aren't investing in Power Translator. The program isn't without its flaws, but it probably knows at least one of its four source languages better than you do.◆



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Notes From The Underground

by Wallace Wang

MIND CONTROL THROUGH BOOK BANNING

If you're afraid that your government may one day censor free speech, you may already be too late. Censorship is alive and well, and thriving throughout the world wherever a small group of people decide they have the right to choose what a larger group of people may read, see, or hear.

So despite its self-appointed role as the defender of human rights (while ignoring human rights violations that occur regularly against women in Egypt, Saudi Arabia, and Kuwait because those countries sell oil), the United States has its own share of censorship that doesn't get as much publicity as censorship in China, Nigeria, or Iraq.

In 1873, the United States passed a law known as the Federal Anti-Obscenity Act, which banned the mailing of "lewd," "indecent," "filthy," or "obscene" materials. Using this law for justification, the government spent the next few decades prohibiting Aristophanes' *Lysistrata*, Chaucer's *Canterbury Tales*, Boccaccio's *Decameron*, Defoe's *Moll Flanders*, and various editions of *The Arabian Nights* from being delivered by the U.S. Postal Service. Portions of the Federal Anti-Obscenity Act were later used as the basis for the Communications Decency Act, which threatened to restrict free speech on the Internet.

Declaring classic works of literature "obscene" quickly became an American pastime among public schools, which supposedly are meant to educate our children, not indoctrinate them (despite morning pledges of allegiance to a piece of cloth called a flag).

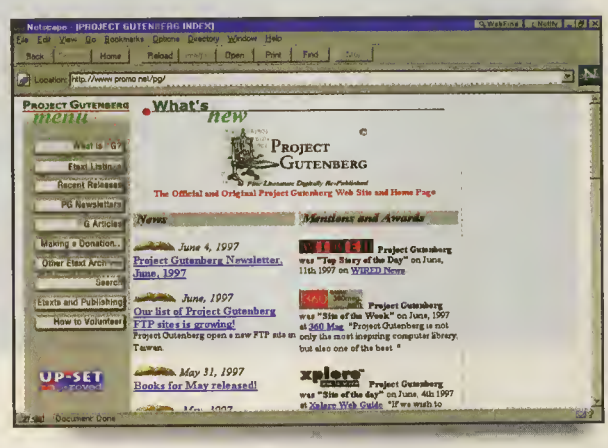
On March 3, 1996, Merrimack, New Hampshire schools pulled Shakespeare's *Twelfth Night* from the curriculum after the school board passed a "prohibition of alternative lifestyle instruction" act. Since *Twelfth Night* includes a number of romantic entanglements including a young woman who disguises herself as a boy, the school board felt justified in its decision.

In 1989, two California school districts banned "Little Red Riding Hood" from *Grimm's Fairy Tales*, since the book shows the heroine taking food and wine to her grandmother. The school districts cited concerns about the use of alcohol in the story (as if children are never exposed to alcohol advertisements on TV that depict beer drinking as a way to enjoy life, meet beautiful people, and get laid).

Despite their claims that they are "protecting children," schools tend to attack classic literature for failing to support a school district's perceived "family values." (Does this mean that Charles Manson could have sued the Los Angeles school district for not supporting the Manson "family values?")

FINDING BANNED BOOKS ONLINE

Given the fact that book banning has been going on for centuries, and shows no sign of disappearing any time soon, you can fight back by reading and distributing banned books over the Internet. That way no matter how many copies of a book are torched, another copy can be made and transmitted around the world faster than the book censors can light another match.



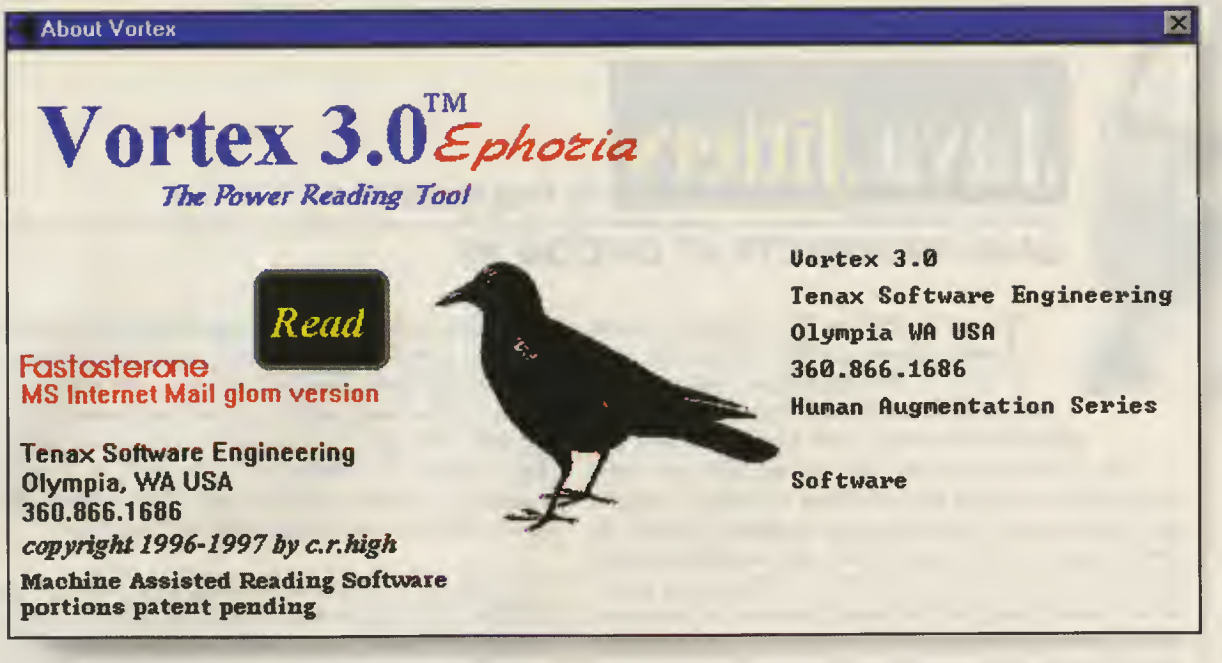
Several popular web sites that offer the complete text of books include Banned Books Online (`www.cs.cmu.edu/People/spok/banned-books.html`), the MIT Press Bookstore (`www-mitpress.mit.edu/bookstore/banned.html`), the American Booksellers Association (`www.ambook.org/abffe`), and the On-Line Books Page (`www.cs.cmu.edu/books.html`).

READING BANNED BOOKS

Most of the above web sites offer books as simple ASCII text files that anyone can read with any computer and word processor. While you could print out a banned book, you might find it easier to just read the book's text on your computer. Since reading text off a computer screen isn't comfortable for most people, visit the Tenax Software Engineering web site at `www.halcyon.com/chigh/vortex.html` and download a trial copy of a program called Vortex.

Wallace Wang is the author of ***CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies,*** and ***More Microsoft Office 97 For Dummies.***

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at `70334.3672@compuserve.com`, `bothekat@aol.com`, `bo_the_cat@msn.com`, or `bothecat@prodigy.net`



Vortex is an unusual speed reading program that can take a complete ASCII text file and display it in on the screen, one word at a time. By adjusting the font and type size, you can read text on your computer comfortably from any distance. By adjusting the speed that Vortex displays individual words, you can increase your reading speed up to 1,000 words per minute. Best of all, Vortex only requires readers to stare straight ahead, thereby relieving the eye and neck strain normally associated with reading from a computer screen.

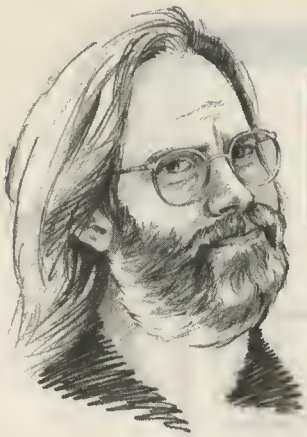
Besides helping you read faster with less eye strain, Vortex has another unexpected benefit. Because it flashes individual words on the screen one at a time, it's virtually impossible for anyone to see what you're reading at a glance. Try reading a book, such as *The Wizard of Oz*, in a family that believes any reference to witchcraft and magic constitutes the work of the Devil, and you may find your parents ripping the book to shreds before your eyes. But if you read *The Wizard of Oz* on your home computer, one word at a time, using Vortex, nobody will have any idea what you're reading because they won't be able to view a book cover or browse through the book contents. (And by using Vortex, you can even read "forbidden" books faster than ever before so you can read more of them in less time.)

A POSITIVE BENEFIT FROM BOOK BANNING?

Book banning is just one form of censorship that never seems to go away. If we allow every special interest group, political organization, or religious sects to dictate their beliefs on others, schools might have to burn all of their books, including the dictionary, the thesaurus, and the encyclopedia (which has happened in the past). Since many kids rebel against authority by doing the exact opposite of what their teachers and parents tell them, book banning might have the perverse effect of *increasing* literacy among school children. After all, who wouldn't want to be considered "cool" by owning, reading, and understanding books that the school system declares dangerous and unsuitable for teenage viewing?

Anthony Burgess, the author of *A Clockwork Orange*, even considered the effects of censorship in his relatively little known novel called *1985*. In this novel, teenagers drop out of school and form street gangs to scrounge for forbidden books so they can learn what the world is really all about, a question they know their public school system will never try to answer.

Perhaps in its own twisted way, book banning may motivate more people to emulate these fictional heroes to read books so they can think for themselves — a noble goal — which we all know, is the real threat to any society that supports book banning in the first place. ◆



Java Jitters

by Doug Shaker

JAVA PROSPECTS AT ISPCON '97

I went to ISPCon '97 in San Francisco and enjoyed it. The technology was all nice — fast machines, fast routers, fast modems and fast lines. The services offered were pretty good, too. As far as I can tell, if you wanted to start up an ISP, you could out-source the whole darned thing — billing, support, web service, mail service, and connections. It would be pretty bizarre and I don't think you would have any profit or any fun, but you could do it. *You*, being a sensible human being with a health interest in your own wallet, probably won't do it. Large corporations, given their large bank accounts and immensely undifferentiated fixation on the Net, probably will. But that's fine — it's just another way to funnel money from the wealthy clueless to the middle-class clueful.

Doug Shaker is a freelance technical writer in California. He has one wife, two children, three pets, and five computers. The computers are obviously out of hand. He can be reached via e-mail at doug@theshakers.org. Yes, that is a personal Internet domain. We told you the computers were getting out of hand.

I take a perverse pleasure in events like ISPCon. All through elementary school and high school, I took a fair amount of crap for being a nerdy little science guy. Now, I can go to a technical conference and the good-looking marketing types pay attention to the nerdy technical types. The notion of hipness seems to have reversed, with the technoids being the hip people and the marketing types being the squares. The nerds have won and I can't say I am disappointed.

One of the things I did at ISPCon was talk to software vendors and service vendors to try to find out if they were using Java. I received some interesting and illuminating responses.

LookSmart Network is a content provider to ISPs. They have described, rated, categorized and commented on some 200,000 sites of one sort or another. They organize references to these sites in a hierarchical manner with a useful menu structure leading you into it. When an ISP contracts with them, LookSmart builds a regional content menu for that ISP — local weather and entertainment get a spot on the root page — and then LookSmart gives it to the ISP to use. These menus are pages and pages deep, with good graphics and clear text. LookSmart sells ad space on the menus and splits the ad revenue with the ISP.

It is a nice service, and the content has the feel that Yahoo had about two years ago — fun, well-informed, good pointers. The menus are accessible, easy to understand and easy to use. The user can also do searches on the indexed content. I did a search on "tennis camp" and it came back with 20 good hits with reasonable comments on each. You can take a look at their stuff at www.looksmart.com.

I asked if they were using Java and they said no, it was all done in HTML and in CGI scripts. This is not a decision without cost. It means that every menu page must be downloaded separately, with all the latency of the Web for each download. If they were willing to use Java, a Java-based menu could be downloaded once and, for the most part, be instantly responsive thereafter. You can see an example of this kind of Java-based menu tree at www.toshiba.com/home/index.shtml. Toshiba's Java menu works well and effectively.

The cost of LookSmart's decision was very obvious at ISPCon. The link from the rest of the world to the trade show floor was big but in very heavy use. Response time varied from miraculously fast to geologically slow. When the Net was overloaded, waiting for the next page to show up was pretty bad. Normal usage patterns and normal network access would be much better.

Still, I was curious as to why they did not use Java. They said that the main reason was browser compatibility issues. They say that Netscape 1.x, Mosaic and Lynx users are still part of their user community. In addition, they have people browsing from within BSD and, much to my surprise, there is no Java virtual machine for BSD yet. LookSmart wants their service to be available to everyone and so they have avoided everything but HTML and server-side enhancements.

This is a laudable goal, but I can't imagine that there is very much money in selling advertising to Lynx and BSD users. Sure enough, when I asked, they had a list of things they would add if they were to start using Java. The top of the list was caching menus and caching 50 or so hits from the search engine results. Apparently, most people don't look at more than about 30 hits from the search before they either are satisfied, give up, or reformulate the search criteria. By caching 50 hits, you can look instantaneous and still have time to go back for more when the user looks beyond 30. The fact that they had such a detailed answer says, to me, that they have a plan and will be switching to Java as soon as market conditions force them into it. That is, within the next year or so.

Planet Direct (www.planetdirect.com) has a very similar business. They also make specialized and regional content guides that they then give to ISPs, in return for a cut of the advertising revenue. Same business as LookSmart and they look very similar. As far as I can tell, Planet Direct has an interface that is a little flashier, a little more customizable, but with fewer indexed sites underneath it.

I asked Planet Direct what their implementation technology was. They said that they had two versions of everything. One was pure HTML/CGI and the other was part Java. Users with old browsers are sent the

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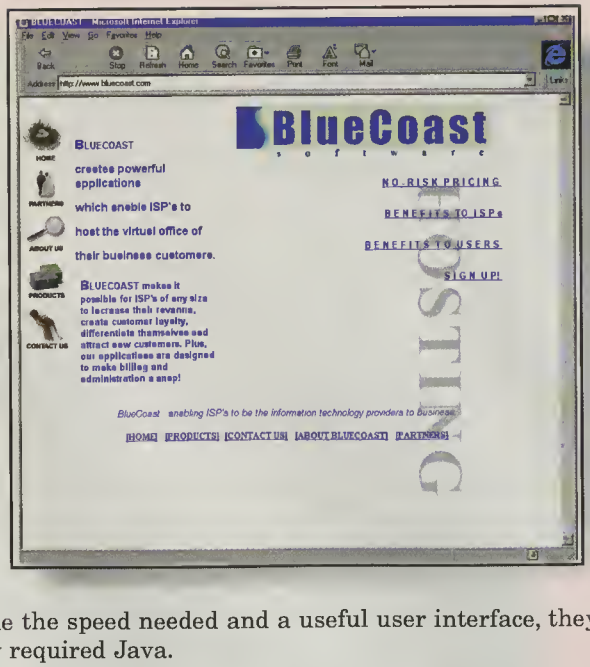
HTML version and users with more re-cent browsers are served the Java version.

When I asked them why they used Java, their response was that nearly all brow- sers supported Java 1.0 but that the size of non-Java browser market was enough to warrant a substitute HTML page. It's hard for me to argue. Naturally enough, I liked the Java-based interface better. I ended up wanting Planet Direct's interface with LookSmart's content.

Later on, I visited with some folks from BlueCoast Software (`http://www.bluecoast.com`). They are selling a group calendar application. It comes in two parts — a scheduling applet for the users and a host application for the web server. The host application contains a database of users, events, and appointments. Users can schedule appointments with other users either by proposing a time and seeing who can come or by proposing a list of attendees and seeing when they can meet.

I have used this kind of thing before. It is very convenient, as long as the boss uses the thing. If the boss uses it, then it becomes the only practical way to get on his calendar, so you have to use it. If you use it, then everyone who works for you has to use it to get on your calendar, so they all use it too. If the boss doesn't use it, then there isn't much advantage to using it, everyone quits after a few days.

The WebCalendar applet is written en- tirely in Java. When I asked why they had implemented the WebCalendar applet in Java, they looked at me as if I had lost my mind. And, I admit, I felt stupid asking the question. There simply wasn't any other realistic alternative for their application. To provide the speed needed and a useful user interface, they simply required Java.



That is not to say they didn't have any problems. There are bugs in the different Java virtual machines out there and BlueCoast had to write code that would work with all of them. This isn't a minor problem, either.

For example, the Java virtual machine that was included in the first release of Netscape Communicator had — ahem — stability issues. On my machine, a Java applet had about a 50 percent chance of putting the Netscape browser into a tight loop. I eventually added the NT task manger to my list of start-up programs, just so that I could kill off the Netscape Java virtual machine when it got out of control. I ended up deleting Netscape Communicator, returning to Netscape Navigator 3.01 and then reloading my version of Symantec Café so that I could be sure of getting a working Java virtual machine.

BlueCoast seems to have found a way of dealing with all of this instability. Their application works fine. They do, however, have the arrow scars that seem to be common to pioneers. For them, Java is the only way to make their application work reasonably. And it is working for them.

Finally, I went to see Apptivity who have a very nice database/Java tool. If you have an ODBC database, their software connects to it, reads the data dictionary, throws together a screen that lets you browse the database and create applications that display and operate on the data. It is too expensive for my tastes — **$1,995** — but it does real work, does it nicely and does it fast. If you are a corporate developer trying to do simple database access applications in Java, this thing would probably cost-justify itself in about a week. If not, it's probably too much money to consider.

There is one glaring weakness in the Apptivity stuff, and, for that matter, in almost all business Java applications. You can't build a good-looking report and then print it out. But this isn't Apptivity's fault. Java has no print model other than the simple character stream model. This is, to my mind, intolerable. How can you have a so-called universal language without a print model that goes beyond simple character streams? It doesn't make sense. It is mind-boggling that, when Sun was putting the 1.1 feature list together, a graphic print model didn't make the cut.

Maybe I am naïve, but I don't think it would be that hard to do though. Most printers in the world fall into one of three classes: PostScript printers, PCL printers, and plain ASCII printers. PostScript printers know a lot about fonts and lines. HP printers, the printers that use PCL, know something about fonts and lines. ASCII printers are dumb as dirt and usually know nothing about anything except straight characters and bit-by-bit graphics. The idea would be, I think, to use the PCL print model, find a Java equivalent, then find PostScript equivalents of all the Java commands that you just created. You would be dumbing down the PostScript printers, but you would end up with a single print model for those two large classes of printers pretty quickly.

The ASCII printers would remain a problem, but the only thing to do there is render the page in memory and push the raw bits out to the printer. A pain in the patoot, particularly the font rendering, but probably doable.

The devil is in the details, and when we talk about printers and details, we do mean the devil. There are hundreds and hundreds of printers out there and they all have some glitch that needs to be dealt with. There are only two ways to get something this big and picky to happen — the corporate way and the Linux way. Under the corporate method, an executive figures out the profits, commits dozens or hundreds of programmers to the task, then the executive's corporation sells the result. The result costs. Under the Linux method, a crazily optimistic person starts work and makes public postings, on the Web or on a newsgroup, asking for feedback, volunteers, and code. Almost all alpha and beta code is available, in binary and source, for others to critique, steal, and test. Hundreds of programmers join in to help, and they give the result away. Surprisingly, the Linux method is cheaper, faster and seems to produce more reliable code. Someone has to start it off and remain cheerfully and publicly persistent for a year or more. Any volunteers? It's for the good of compute-kind...

A FINAL NOTE

If you are running Windows NT or Windows 95, you owe it to yourself to get a copy of *Windows Annoyances* by David A. Karp (O'Reilly & Associates, ISBN 1-56592-266-2, **$29.95**). I had an annoying problem with my NT box that had plagued me for a month. A backup program that I had downloaded for a trial proved to be incompatible with my tape drive. When I ran the deinstall program, it failed to remove a fairly obscure entry that the install program had made in the Windows registry. As a result, I got a "Cannot find file" dialog box every time I booted. Not so awful, really, but it kept my startup routines from running and was an annoyance. I e-mailed and called support for the company making the backup program. They, after a few weeks, figured out that it must be a registry entry, but neither they nor I could find the place in the registry that contained the erroneous reference. Two weeks later, I bought *Windows Annoyances*. Within ten minutes of opening it I had several places to look. The third place had the error and I was able to fix it in another minute. I am one happy and satisfied customer. The book is a descendant of a web site that Karp maintains — `http://www.creativelement.com/win95ann`. Solid, useful information, presented in a lively and understandable fashion — triumph of technical writing. Check it out.◆

STREAMING MEDIA

by Doug Mohney

POTPOURRI INTERNET BROADCAST SUMMER

We interrupt the regularly scheduled tutorial on Internet video broadcasting to provide you with the latest information on Microsoft's moves in the Internet broadcast space, along with MCI's leap into the rapidly heating field.

Doug Mohney was employee #10 at DIGEX. He has learned, and forgotten, a lot about help desk support, competitive intelligence, sales and marketing, leased-line service ordering, telco service, and public relations. He makes no pretenses at understanding anything more about the technical side of IP other than being able to get a PPP account working.

His writings have been published in *LA View*, *Washington Technology* and the *Washington Post*.

It has been my belief (i.e. I told you so) that there were too many players in the Internet video software market space. Some of these companies were going to die, others were going to be bought out, leaving two players standing: Microsoft and Progressive Network.

I stand only half correct. I didn't think Microsoft was going to move this fast this soon.

In less than 30 days, from mid-July to mid-August, Bill Gates' boys started wheeling and dealing in a remarkable series of announcements and purchases that established Microsoft as the market leader in the Internet video software field. Most of the "leadership" was through the power of Microsoft's check-writing ability, but the moves served to streamline the streaming video market toward a unified standard. That instead of forcing content producers — the people who make and deliver video — to select one format from the current marketplace tower of Babel with anywhere from six to eight different standards.

The first deal was consummated when VDONet and Microsoft made an announcement whereby VDONet would be a Microsoft "Solutions" Provider for Microsoft NetShow. Since Microsoft already owns a piece of VDONet, this appeared to be no big deal on the surface.

Of course, the killer asteroid hit the Earth on July 21, the Monday before the start of Internet World Summer, when Microsoft and Progressive Networks made an announcement of love, fidelity, and working together in exchange for Microsoft buying a **$15 million** chunk of Progressive Network. Specifically, Microsoft will license RealAudio and RealVideo 4.0 technologies for incorporation into its NetShow streaming server. Both companies will ensure that clients and servers from either company will interoperate using RealAudio and RealVideo.

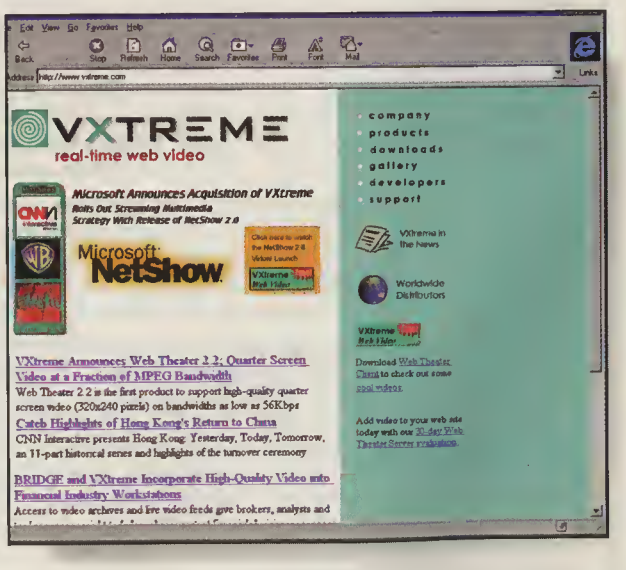
In the future, Progressive and Microsoft would work with other companies to define future versions of Microsoft's active streaming format (ASF). Both companies will use ASF as the native streaming format for the next version of their streaming media product developments, in addition to supporting the existing Progressive Networks formats.

Finally, Microsoft will include both the RealPlayer 4.0 and NetShow clients with its Internet Explorer. Microsoft will distribute Progressive Networks' EasyStart RealAudio and RealVideo Server with NetShow 2.0 until it releases a product compatible with RealAudio and RealVideo.

WHY SHOULD I CARE?

Microsoft and Progressive Networks are going to work on a standard streaming video format. Since Progressive Networks probably owns 85 percent of the current streaming media market and Microsoft owns most of everything else, the Microsoft/Progressive Networks standards are likely to be *the* standards, and probably one of two factors that squicked the Justice Department into looking over Microsoft's streaming media deals.

Microsoft is going to distribute Progressive Networks' client and server software until it has software that can speak in RealAudio and RealVideo formats. This is a good thing for Progressive Networks because the NetShow server is a pain in the rear to install when compared to the Real server.



For dessert, Microsoft bought VXtreme (`www.vxtreme.com`), another video streaming company, on Aug-

ust 5. VXtreme had convinced General Electric and CNN Interactive to use its program. CNN Interactive has used everything except Progressive Networks' RealVideo, including QuickTime and Vivo. VXtreme had developed code and compression schemes to do quarter-video screen video (320 x 240 pixels) at 56K speeds. There's some other code that will be incorporated into NetShow and Micro-soft's "Tiger" project, software designed to deliver quality full-screen/full-motion video over corporate LANs.

Somewhere along the road, Microsoft also managed to convince Vivo Software Inc. to base its broadcast tool product line on NetShow, and ASF technologies.

Needless to say, the Department of Justice has decided to review all the money and deals flying around. But will DoJ have a solid case?

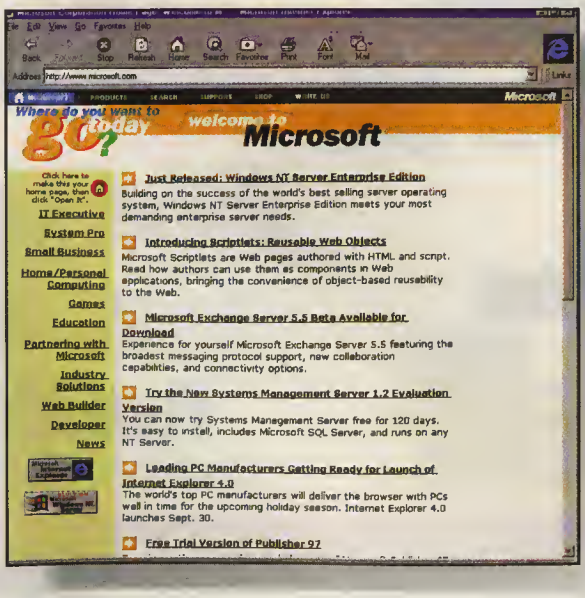
Let's face facts: Pre-Microsoft spending, there were a whole bunch of competing formats, with the dominant RealVideo. Microsoft has agreed to adapt the dominant format and put a good chunk of money into Progressive Networks. Nothing wrong there; it's very likely that Microsoft expects to make that money back several fold when Progressive Networks goes public down the road. After all, Microsoft investments into UUNET and Apple have paid off quite handsomely and neither of those investments resulted in the world coming to an end.

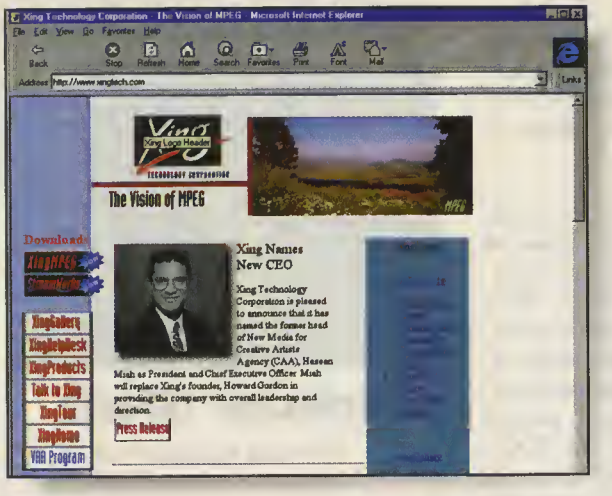
The VDONet deal was nothing earth-moving; after all, Microsoft bought codec software compression technology from VDONet in the first place to get NetShow 1.0 off the ground. VDONet becomes a Microsoft "Solution" Provider for NetShow-based products and VDONet will adopt ASF as its file format, just like Progressive Networks. Is interoperability between NetShow, VDONet, and Progressive Networks products a bad thing? Hardly.

Perhaps the only deal that Microsoft may have to "undo" is the purchase of VXtreme, and even that's very unlikely. Microsoft can honestly state that VXtreme was a little fish in the market, and gobbling them up doesn't result in "domination" of the marketplace. However, Justice Department people will be more skeptical with the VDONet and Progressive Networks deals announced, that, taken as a whole, definitely put Microsoft *and* Progressive Networks in the driver's seat.

Besides, Microsoft probably has more to fear from Progressive Networks than vice versa. Microsoft cannot buy Progressive Networks in full; then the Department of Justice would come running. Progressive Networks has the most players out in the marketplace and Microsoft has agreed to hand out the RealPlayer until it develops a player that can understand the Real formats. Finally (and herein lies the big kicker), the Real server is easier to install across more platforms and has paid technical support.

As of this date, you get NetShow server 2.0 for free until the end of the year, but the only support available is through Microsoft's web site. Until Microsoft starts charging for NetShow server software at the beginning of `98, the only support available for one of MS's more complicated programs to install under NT is via `www.microsoft.com`. No





phone support. No friendly technician to yell curses at. No "NetShow Server for Dummies" books in the local bookstore as of October 1, 1997. If you don't have the cash, you run NetShow and accept the fact you're going to have to spend a lot of time in lieu of money to make the thing work. If you do have the cash, you bite the bullet and pay the money for Real server, and save on aspirin bills.

Of course, all of these deals do make it lots harder for the wild card in this whole equation: Xing Technology (`www.xingtech.com`) and the Xing Streamworks and XingMPEG software. Xing has been plugging along for seven years writing code. MPEG is an ISO set of standards for broadcasting compressed audio and video. It is the favorite for moving video across cable and satellite networks. The biggest hurdle to the successful implementation of MPEG-based video on consumer desktops has been CPU and bandwidth, but the CPU barrier has fallen with the proliferation of high-powered processors for both compression and playback. How- ever, Xing StreamWorks needs a pipe of 128 Kbps, 384 Kbps, or greater to the end user before the audio and video looks okay. At lower data rates, it doesn't have the quality of RealAudio and RealVideo.

In addition, there are a few products that are being built as "plug-in free," using a set of downloadable Java applets to provide the appropriate audio and video codecs and controls in lieu of the hassles of a downloaded and in- stalled plug-in. However, Java video applets typically have to be laboriously downloaded each time before the streaming media starts up. Most folks have chosen to take the one-time efficiency hit of plug-ins over Java for streaming media.

Having worked with Microsoft to establish industry standards for streaming audio and video, Progressive Networks followed through with a joint announcement with MCI for a large scale streaming media distribution network, called (what else?) the RealNetwork. The RealNetwork (`www.realnetwork.com`) is currently designed to support up to 50,000 users at the same time, that is about the size of penetration for a major market radio station and also claims to be an "industry first" and a "technology breakthrough."

NOT REALLY

MCI gets credit for building the largest streaming media distribution network,

with nine server sites across its Internet network, but it's not unique. Both AudioNet (`www.audionet.com`) and itv.net (`www.itv.net`) have built similar networks for video distribution networks using a variety of software formats, including RealAudio/Video and Microsoft NetShow, while Xing has developed a similar infrastructure for events broadcast in Xing Streamworks format. Both AudioNet and Xing have publicly claimed audiences of over 10,000 people in the past and will no doubt be upgrading and expanding to match the numbers that the RealNetwork is supporting. The MCI/Progressive Networks project is going to have some advantages, including a funnel from the tons of leads which its been collecting over the past two years from the RealAudio and Real web sites, plus a well-oiled and financed marketing machine.

Some folks are very uncomfortable with the concept of Progressive Networks hopping into the arena of broadcast services while it is also selling the software for Internet broadcast. ISPs have been grumbling about the pricing on the RealMedia server ever since the "Professional" server software was released. For a 100 user license, the price is **$8,390** once you include a year of upgrades and service. To support 400 users, the Professional package is **$33,590**, plus another **$9,595** in follow-on years for upgrades and support.

Pricing on 1,000 users or more? You'll have to ask Progressive Networks directly since it isn't giving pricing on its web site or in its literature. Should you want to set up something in competition with the RealNetwork on the same or larger scale, you end up letting Progressive Networks know you're competing, unless you want to run Microsoft NetShow.

Since the NetShow server is free through the end of the year and Microsoft, isn't going to run a competing broadcast network, it's pretty easy to understand why those same ISPs are quietly rooting for Microsoft.

If you're an ISP with the streaming media hankering, what's the bottom line? By the time you read this, at least one more large-scale streaming media network major deal will be unveiled. People with content — live events, pre-recorded shows, or their own live version of "Wayne's World" — will have a choice of networks. The software technology you choose — so long as it's RealVideo or NetShow — shouldn't make a difference.

In the meantime, you may want to start thinking about what you want to broadcast. ◆

AlterNIC Presentation for ISPCON

By Eugene Kashpureff

Good afternoon, my name is Eugene Kashpureff. I am the founder and CEO of A Towing Company, Inc. of Washington state, currently doing business on the Internet as `Alter.NIC`, or `AlterNIC.net`.

I will be making a prepared presentation today, followed by a question and answer session. First, I'd like to present a sincere apology.

I am very sorry about the name service interruption that I caused to `www.internic.net` during the weekend of July 10 through the 14th and to `www.netsol.com` during the weekend of July 21 through the 23rd. I sincerely apologize to the Internet community as a whole and to Network Solutions, Inc. for my actions. The Internet provides a great free and open space. I want to be sure that it stays that way. My actions hindered others' freedom to use and enjoy the Internet. For this I am deeply and sincerely sorry. I will not engage in these or similar actions in the future. I am cooperating with Network Solutions to try and make sure that my actions cannot be duplicated by others. Again, I offer my apologies to the Internet community.

I've been involved in the computer industry since 1975, when I had the chance to use one of the first single board microcomputers, the Intel 8080-based MkVIII trainer, with hexadecimal keypad and four digit hex display. The first language I learned was 8080 assembler. I was ten years old. Over the years I got to enjoy using many of the early home computers, including the old Processor Technology Sol-20 with its wooden sides, and using Microsoft's first 8K BASIC on an Altair. I still have an old OsborneI and a KayproII, as well as an Apple II in my computer collection at home.

The availability of the power of home computing for the masses that was first heralded by the release of Intel 8080 and those early home computers when I was ten years old would create a societal revolution, a revolution that would impact the world more than the invention of the steam engine by Thomas Newcomen and James Watt in England in 1763 did when steam powered the start of the first industrial revolution. Computers don't just show up on our desktops any more, they are in the TV, the stereo, the microwave oven, the alarm clock, kitchen toasters and coffee pots, and children's talking and walking toys. Integration of microprocessors into the appliances of our every day lives is evidence of the computer revolution.

A Towing Company, Inc. was started as an automobile transport business in 1994, operating two flatbed tow trucks in the greater Seattle area, twenty-four hours a day, seven days a week. With the sudden growth of the commercial Internet in 1995, and the technical experience already available to the company, the decision was made to move the company to the role of a hybrid Internet service provider. We traded in our tow trucks for web servers and network routers.

Since the transition from the concrete of the interstate highway to the fiber of the information super highway A Towing Company, Inc. has been an Internet industry leader. We created one of the first on-line yellow pages search engines, `yellowwweb.com`. We integrated digital graphics with real estate listing data bases for a new virtual Internet multiple real estate listing service. The domain name speculation market came to the front of the news with the company's launch of the first domain name rights brokerage web site on line, `BrokerAgent.com`, now called `www.BestDomains.com`.

As an industry leader, the company has had numerous articles and media exposure over the years, including features in *The New York Times* and *The Washington Post*, in *Wired*, *Boardwatch*, *Web Week*, and Internet underground magazines, as well as in the web news services of Netly News, C|Net, MSNBC.

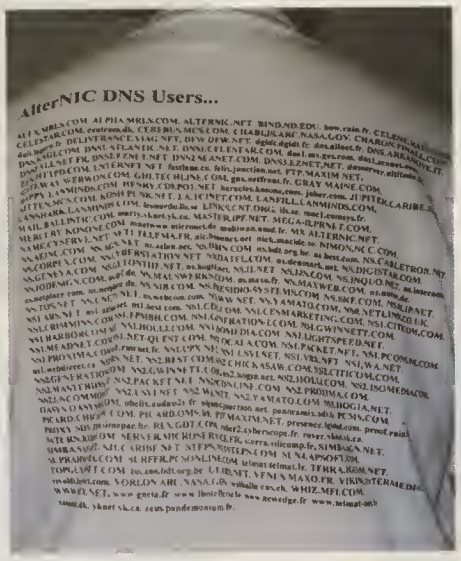
With the development of Alter.NIC, A Towing Company, Inc. decided to raise awareness of the company while forwarding ideas of Internet social responsibility. Alter.NIC promotes freedom of encryption and the right to privacy, Alter.NIC promotes access to the network and the right to free speech for all, Alter.NIC promotes the free democratic governance of the Internet.

Alter.NIC publishes its own version of the root zone file, containing not only the more accepted current three letter generic TLDs and two character ISO country code domains, but also new privately run TLDs, encouraging development of new

domain name registries and freedom of choice in the domain name space.

Alter.NIC is not made up as a commercial enterprise. As an ongoing business, Alter.NIC is a loss. Alter.NIC is made up of its users. Not only the operators of Alter.NIC alternative Top Level Domains, like Lanmind's .fam from here in California, Skyscape of Canada's .film and .help, .gmbh and .ger from Germany, .wine from France, .jpn by Shirokuma Publishing in Japan, Jay Fenello of Iperdome's .per, and Richard Sexton's VRx Network Services .faq and .zoo . . . but also the DNS users who have looked to Alter.NIC for root level and enhanced DNS for over a year now, bow.rain.fr in France, fastlane.ca in Canada, and ns1.wa.net back home in Washington state, as well as many others listed on the back of the shirt I'm wearing. They use Alter.NIC domain name service because they want to exercise their freedom, freedom to the domain name space of the Internet, and freedom of choice in domain name services. Freedom to the domain name space, and domain name holder rights, is just one representative

Lauren Nowin, "InterNIC Cheerleader for Network Solutions, and Eugene Kashpureff of AlterNIC, were all smiles at ISPCon. Photography by Steve Clark



issue of concern over Internet governance. Alter.NIC tries to represent the users as best we can, to promote those users right to choice within the Internet domain name system.

Alter.NIC advocates expression of freedom to the domain name space by primarying the root zone for yourself. That is, if you are operating your own name service, you should be running a local primary copy of the root zone file, whether it be the IANA version of the root zone, the eDNS.net version, the uDNS version, the AU RSC version, or the Alter.NIC version of the root zone file.

When Henry Ford introduced mass production and started the first assembly line, the second industrial revolution began. With the addition of the digital communications capabilities of the Internet to the power of the personal computer the beginning of the second computer revolution has started. It is a new societal revolution of communications, occurring on the new frontier of cyber space.

We face with this new frontier new challenges, and new fears. With the challenge of secure transactions, we have the fear of fraud. With the challenge of maintaining our freedom to privacy, we face fear of government restrictions on cryptography, and government key escrow. With the challenge of protecting our freedom to speech, we face the fear of protecting our children from pornography. As well as maintaining our freedoms, we must have rules to protect our rights on the Net. And with rules, we need enforcement. And with any enforcement, we need fair judgment.

The Internet is a revolutionary communications tool, and freedoms on the Internet are freedoms of communication. Of all the human rights which we call freedom and hold to be dear, freedom to express our ideas is the basis for all other human rights.

I have four children. The Internet I work for is not the Internet of today, it is the Internet of tomorrow that my children will use, and the cyber space that their children will use. As much concern as I have for preserving the natural wilderness and open spaces that I enjoyed growing up with for my children, I am concerned with preserving their freedoms in cyber space for the future. Already I am amazed every day at the impact that microprocessors has had on our daily lives since the introduction of the Intel 8080 when I was ten years old. Not amazed by the computerized microwave oven or toaster, but by the integration of computer workstations into our working and home environments. The Internet that is developing today is the cyber space that all of our grandchildren will be using in their every day lives, both at work and at home, a hundred years from now. The responsibility we have today to develop an independent democratic Internet governance, is to those who will use the Internet over future generations, and to protecting their freedoms.

Current laws attempt to govern aspects of the Internet in various countries around the world. But the Internet spans over those borders, and all of the Internet's problems span across those borders too. Software piracy is often an international crime, with bootleg software being duplicated in countries where . . . it isn't illegal? Child pornography is still constantly broadcast over the Internet, from obscure international locations, despite the wide international efforts of authorities to prosecute both publishers as well as abusers of this illegal pornographic material.

Most of the real power to govern on the Internet still lies with the United States government, which first started the Net as the ARPA computer network in the 1960s, long before the "Star Wars" years in the 1980s. The U.S. government still administers the true authority of the Internet, through the National Science Foundation, and its various grants and contracts, most notably to the Internet Assigned Numbers Authority, which we are told is not an entity, but a 'function', performed by the Information Sciences Institute at the University of Southern California. That is, the USA runs NSF which contracts the IANA from ISI at USC. Enough acronyms?

Jon Postel of the IANA at ISI worked very hard to come to up with an equitable solution for the top level domain name problem, and wrote the excellent Internet draft, draft-postel, which proposed specific recommendations for a solution to the top level domain name issue, and created the Internet International Ad-Hoc Committee, or IAHC, in the fall of 1996. Unfortunately, the first thing the committee did was throw out the basic framework for a solution that Jon Postel of the IANA had worked so hard to develop community consensus for, working within the Internet Engineering Task Force, as well as with other organizations involved in the development of the Internet, including Alter.NIC.

Despite wide objection from the Internet public during the comment period this last winter, the IAHC finalized its new TLD plan as the Generic Top Level Do-main Memorandum of Understanding, or gTLD-MOU this spring.

The recent move by the International Telecommunication Union to adopt the gTLD-MOU may seem to be a good one towards developing international Internet governance, but the ITU seeks control of a large aspect of Internet regulation, and the ITU does not have sufficient oversight by its member nations as a specialized agency of the United Nations, it has more representation by commercial interests with the their 363 members from the three ITU sectors. To this date, only a small percentage of the ITU's own membership have signed on to the gTLD-MOU, and only a few number of potential registrars have been approved for their shared registry plan.

So . . . the USA runs the NSF which contracted the IANA from ISI at USC, which created the IAHC through IETF with ISOC to write the gTLD-MOU and IPOC under the ITU. Enough acronyms for every one? Are we totally confused now?

The future of domain name allocation, as well as IP address allocation, are central to the power of the root of the Internet, and are primary issues of Internet governance facing us today.

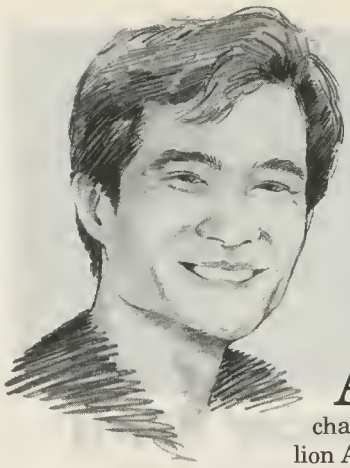
U.S. Federal government recent attempts to govern the Internet highlight the problems of a country trying to implement control over the anarchy of the Net. The recent Supreme Court decision on the Communications Decency Act thankfully addressed the broad nature of the law and the threat it posed to freedom of speech, but the decision did not point out the larger problem of trying to regulate delivery of international content and traffic. Alter.NIC does applaud the current U.S. presidential administration for the "hands off" policy expressed in the recent statement on Internet commerce, as well as the U.S. State Department for refraining from signing the ITU's gTLD-MOU.

The Internet needs its own governance, independent of the current geo-political governments of our planet. A democratic governance, with true representation for every Internet user. A governance with a legislative branch, to make fair rules for all Internet users, as well as an executive branch to enforce those rules, and a judiciary branch, to ensure that those rules are fairly applied to all users, everywhere.

What should you do to promote Internet governance? Be active. Be informed. Follow the issues. Find organizations whose ideas you believe in and support them, whether it be Computer Professionals for Social Responsibility, or Electronic Frontier Foundation, or Domain Name Rights Coalition, or Voter's Telecommunication Watch. Find out who they are. Choose an organization, pick an issue. Write to your politicians. Join some of the mailing lists where these issues are being discussed. Take time to be active, take time to care.

There are those who say that the Internet is not yet mature enough for its own governance. But the path to maturity for cyber space as a society is through an awareness of the need to protect our rights to free communication in this new frontier. Democratic Internet governance will come as the users of the Internet become aware of the need for it, and demand it.

The top level domain name issue and the implications of its solution are very central issues to the evolution of Internet governance. If there is a time to start caring about these issues, it is now. Visit one of the alternative root sever operations like `www.alternic.net` or `www.edns.net`, as well as taking time to review the ITU plan at `www.gtld-mou.org`. The future of the top level domain issue, and the future on the Internet, is in your hands. ◆



BIG BOARD BRIEFS by Wallace Wang

AOL AND CBS SPORTSLINE JOIN FORCES

America Online has made a marketing deal with CBS SportsLine. In exchange for giving the more than nine million AOL members access to CBS SportsLine, AOL will receive an undisclosed "seven figure" payment as well as on-air promotion of AOL and integrated programming and promotion on the CBS SportsLine web site (`www.sportsline.com`), with the AOL icon appearing on the site.

Look for CBS SportsLine on the AOL Sports Channel. CBS SportsLine offers continually updated scores, statistics, analysis and live coverage of major events as well as chat rooms and access to the personal web site of Michael Jordan, the basketball star. Rabid sports enthusiasts can buy CBS SportsLine merchandise online as well. Of course, a portion of any CBS SportsLine merchandise you buy through America Online will go toward keeping AOL's profits high.

Wallace Wang is the author of ***CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies,*** *and* ***More Microsoft Office 97 For Dummies.***

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at `70334.3672@compuserve.com`, `bothekat@aol.com`, `bo_the_cat@msn.com`, or `bothecat@prodigy.net`

TNT, COMPUSERVE REACH OUT FOR DUTCH/UK INTERNET ACCESS

In an effort to cash in on the growing Internet growth overseas, CompuServe joined forces with TNT Express Worldwide to offer British and Dutch companies a free Internet trial access package. The move will help both companies capitalize on the expected significant growth in Internet usage in Europe as it will encourage businesses "to try going online for themselves."

Approximately 40 percent of small and medium British businesses now have Internet access, a major increase over the past six months. Besides offering Internet access, TNT Express Worldwide hopes that consumers will order goods from businesses who are online, using TNT for delivering the product to the consumer.

AMERICA ONLINE INKS DEALS WITH TWO ONLINE MERCHANTS

Using its 9 million subscriber base as an incentive, America Online recently convinced two online merchants, Amazon.com and 1-800-Flowers, to advertise on its service. Amazon.com will pay AOL **$19 million** over three years for the privilege of displaying a front-screen button (visible without scrolling down) on the AOL.com homepage, which is strangely the most visited site on the Web. This button will link users directly to the Amazon.com Internet site (`www.amazon.com`) where they can review and purchase books.

America Online also signed a deal with 1-800-Flowers (Keyword: Flowers), the world's leading florist. Under the agreement, 1-800-Flowers will be AOL's exclusive seller of floral and plant products. America Online estimates that 1-800-Flowers will earn over **$250 million** in cumulative sales over the four-year term of the agreement. As part of the agreement, AOL will receive payments totaling **$25 million**, plus a limited revenue share.

MICROSOFT REVAMPS THE MICROSOFT NETWORK (AGAIN)

Still proving to the world that it doesn't have the slightest clue how to run an online service, Microsoft recently announced that it will shift the focus of its Microsoft Network away from television-style programming and back to informational and service-oriented programming. Part of the reason Microsoft cited is the lack of interest for its special content among its 2.3 million Microsoft Network members who use it primarily for access to the Internet.

Microsoft plans to make more of its online service content available for free to all users of the World Wide Web in addition to supplying special content available only to its subscribers. Since it's unlikely that Microsoft will find a way to make its proprietary content interesting, expect the Microsoft Network to dissolve into a pure Internet provider along the lines of Prodigy if it expects to survive.

PRODIGY DEVELOPS E-MAIL TOOLS

Prodigy (`www.prodigy.com`) recently developed two new tools for its Prodigy Internet members: Prodigy Agent and E-mail Blocker.

Prodigy Agent can alert you when e-mail arrives — online through an audio and text alert, or offline through a pager/beeper. The Prodigy member can set the alert to be delivered when any e-mail arrives or only when e-mail from a specific individual (such as a boss or an extremely attractive member of the opposite sex) arrives. Prodigy plans to enhance Prodigy Agent to alert members when their stocks hit a certain price, when friend enters the chat area, or when someone responds to a member's note in a newsgroup.

E-mail Blocker, the inverse of Prodigy Agent, can be used to block unsolicited e-mail. Members who receive an unwelcome e-mail from any source can hit the E-mail Blocker option in the Prodigy Internet Member Services area and forever block either the individual address or the entire domain.

"We're particularly pleased to roll out these in-house developed technologies to our customers," said Dr. Inder Gopal, Prodigy's senior vice president of development and chief technology officer. "Because we built them to the open standards of the Internet, we have the option of licensing them to other ISPs."

AOL DROPS PLAN TO SHARE USERS' PHONE NUMBERS

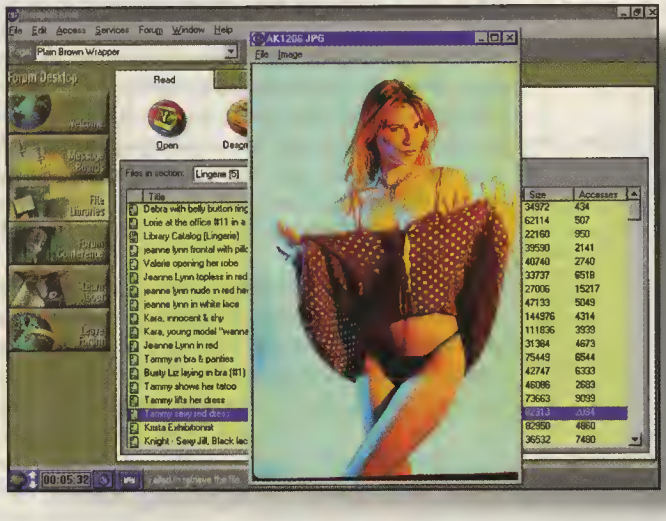
America Online has dropped plans to sell subscriber phone numbers to certain business partners for telemarketing purposes. After a mounting outcry from customers and privacy advocates, AOL used its doublespeak to claim it had never planned to make the phone numbers of its more than 9 million subscribers worldwide "available for rental to telemarketers."

"The only calls we intended for you to receive would have been from AOL and a limited number of quality-controlled AOL partners," the company said in a five-paragraph statement. "However, upon further reflection, we today decided to change our plans. We will not provide lists of our members' telephone numbers even to our partners. The only calls you might receive will be from us," the company said.

So what's the difference between receiving annoying phone calls from America Online telemarketers or another company's telemarketers? At the very least, you can expect that AOL won't sell your phone number to other companies which could resell your number to still other companies. Other than that, the effect will pretty much be the same as receiving telemarketing calls to convince you to buy stuff you don't really want anyway.

COMPUSERVE SEGREGATES ADULT CONTENT

CompuServe has created a separate online "adult community" by isolating adult forum areas, libraries and games from their other services. CompuServe said it will require potential users to create a password and confirm that they are at least 18 years old before they gain access to the new isolated services.



Essentially this means that anyone under 18 years old can now lie to receive a password to access the adult-oriented areas. Since this new password feature won't likely be effective, parents can still block access using parental controls, assuming, of course, that the parents can figure out how to use the parental controls without their children's help.◆

LINUX REDUX by Alan Cox

CONFIGURING A FIREWALL

Alan Cox is the technical director of CymruNet, a leading Internet service provider in Wales, United Kingdom. Cox is also a member of the Linux International Technical Board and the CERT vendor contact for Linux. He maintains the ***http://www.uk.linux.org*** *web page and leads the Linux Networking Project, the project ot port UNIX to shared memory multiprocessor architectures, and a project to port Linux to 8086 embedded controller systems. Send e-mail to* **alan@cymru.net**

As promised a couple of months ago, it is time to look at a real firewalling example, and at the two important roles firewalling providers. We all know the first — protecting us from the bad guys out there. The second one is quite important too — protecting them from the bad guys we accidentally pick up. They can be our own dial-up customers, hackers who succeed in breaking in, or even bored technical support staff. I'm assuming you've got the other article handy. If not, then buy the back issue, look on the web site, or just hold onto your hat and a copy of "man ipfwadm."

As it turns out, making your users use the right addresses is an easily defined goal. Make sure that the addresses coming off your network and going upstream are valid source addresses for your network. This simple action ensures that someone breaking into other sites from your network has a real traceable IP address that says, "He's over there." It's about time backbone providers started mandating such rules downstream. On the backbone itself, such rules are impossible to implement, and on big providers' routers the performance hit is just too major. If it's done on the little routers on the edge of the Net, nobody will be able to measure any difference in performance, and all the hardware can cope.

Protecting your own network is trickier. It gets worse as you provide more services. On the brighter side you only have to get it right once to shield all your hosts, regardless of platform.

For our example network, I've taken a typical mini ISP setup. We have a bunch of customers [A], whom we don't trust. We have a set of host machines [B] that we want to keep fairly secure, and we have the outside world [C] whom we really don't trust one inch. Finally, we are making the assumption that customers' security is their own problem.

The network numbers I'm using for A and B are just samples from the unrouted address blocks. I'm hoping here that most *Boardwatch* readers can substitute IP addresses for their own.

```
eth0[a]   [b]   eth1
-Internet-----[Linux]---[Office Hosts] 10.0.1/24
              | [c]
              | eth2
              +-------Dialup Rack 10.0.2/24

(caption [a] 10.0.0.1 [b] 10.0.1.1 [c] 10.0.2.1)
```

and The Linux host is 10.0.0.1, 10.0.1.1, 10.0.2.1 respectively.

First, we want to stop Internet users impersonating our networks.

```
ipfwadm -I -a deny -S 10.0.1/24 -D 0/0 -W eth0
ipfwadm -I -a deny -S 10.0.2/24 -D 0/0 -W eth0
```

The aim of these rules is simple — packets that turn up from the Ethernet alleging to be from one of our hosts are a bit dubious, to say the least.

We also don't want people sending stuff to our broadcast addresses and generating a lot of traffic. In networking, such packets are often referred to as "letter bombs."

```
ipfwadm -I -a deny -S 0/0 -D 10.0.1.255
ipfwadm -I -a deny -S 0/0 -D 10.0.2.255
ipfwadm -I -a deny -S 0/0 -D 255.255.255.255
```

The next problem is our wonderful collection of dial-up users. If we block a service, someone will want it and complain. I guess the sharp folks might want to sell them security services instead.

We do, however, want to stop our dial-up users from generating syn bombs and other address-faking attacks. This saves having very annoyed security people from our upstream provider, or the police, knocking on our door late at night.

```
ipfwadm -I -a accept -S 10.0.2/24 -D 0/0 -W eth2
ipfwadm -I -a deny -S 10.0.2/24 -D 0/0
```

Because the firewall rules are individually quite primitive, we can't say, "deny all but..." instead we must split up the logic. Note that we choose use input rules wherever possible. A packet failing the input rule will not be forwarded either. If a packet is fake, we don't want to forward it, but we also don't want to trust it.

We now have a situation where packets from our dial-up ports that don't have a source address on our dial-up rack disappear quietly and all those "amusing" little toys won't work.

THE OFFICE NETWORK

We don't, in general, want to restrict what can be done from an office network, but we do want to restrict access for incoming traffic to it. Several network protocols make it hard to configure a Linux (or any other) firewall for this kind of operation. The biggest culprit of all is FTP. The normal mode of FTP operation involves the FTP server connecting back to the client. There is an additional FTP mode referred to as "passive." In this mode, the connections originate

from the client. Under Linux "pftp" starts FTP in passive mode; ncftp also supports passive mode.

Okay, first things first. We want to start with

```
ipfwadm -F -a deny -P tcp -S 0/0 -D 10.0.1/24 -y
```

The flag "-y" we haven't met before. This lets us match TCP packets with the "syn" flag set but not "ack." In normal human speak that means packets carrying TCP connection requests. We don't want people making incoming connections to the office network. This is our first forwarding rule.

This means we default to blocking connection requests packets heading for 10.0.1.*. We don't block outgoing packets. Here I am assuming the office is trusted. If not, we would follow the same plan as the dial-up and add

```
ipfwadm -I -a accept -S 10.0.1/24 -D 0/0 -W eth1
ipfwadm -I -a deny -S 10.0.1/24 -D 0/0
```

The next thing we need to do is to punch a few small holes in this firewall setup so the office users can actually use the Internet usefully. There aren't many services that matter. We use the "-i" option to insert these rules before the forwarding rule we entered above.

```
ipfwadm -F -a accept -P tcp -S 0/0 -D 10.0.1.2 smtp
```

This assumes the office mail server is 10.0.1.2. We choose to allow SMTP access to this. The alternative is to place the mail server outside the office network and use POP3 to read mail from it. However if we keep the mail server inside, we know that internal e-mail stays behind the firewall. This is good for peace of mind sometimes.

Now we have to deal with the UDP and other services. I'm going to assume we aren't worried about ICMP packets, and that being able to use ping from the office network is useful, as is traceroute.

On the whole, there is only one UDP service that matters — name lookup. If all the client machines are set to use the firewall for lookup, then we can add a rule to only allow the name lookup.

```
ipfwadm -F -a accept -P udp -S 10.0.1.1 53 -D 10.0.1/24 -b -W eth1
```

This allows UDP packets to and from port 53 (the name server port) of the firewall itself. We have to place this on the firewall as if we placed it beyond the firewall someone might feed us packets faked from our port 53 designed to upset our machines. If we had two layers of firewalling (which is a good idea if we have the resources), we could use the outer firewall to protect against faking addresses and place the name server between that and the office firewall. This is good practice given the option.

The "-b" flag here makes the rule bi-directional — so that both queries and replies work.

Finally with

```
ipfwadm -F -a deny -P udp -S 0/0 -D 0/0 -W eth1
```

we block everything else that is UDP.

Our office LAN should now be usable — a few things won't work (e.g. UDP-based RealAudio and FTP, except in passive mode) but we have a fair compromise and a setup that is a bit more secure.

THE FIREWALL BOX

We have a weak point. It is the firewall itself. For that reason we want to run the absolute minimum of network applications on it. There should be nothing on that machine accepting packets except for the name daemon. You can check that with *netstat -an*. It should show no TCP sockets with "LISTEN" by their name, and no UDP sockets.

If you find there are things left over then look at the output of "ps -aux" and take out network processes that you don't need — things like inetd, lpd, sendmail, NIS, until you find they have all gone but the name daemon sockets on port 53

The firewall box is just routing packets and doing name lookup. That means it should be doing nothing else. That even means you need to walk over to it to change the configuration. This is a good thing. Changing configurations over the network is potentially dangerous. It is also very easy to lock yourself out while altering something minor from a remote site, or even to firewall off your entire site and have to face a horde of maddened screaming customers.

A packet filter is by no means the ultimate in security, but it is a relatively cheap and easy way to set up basic protection.

ENOUGH OF THE TECHNICAL STUFF ?

After fighting with the technical stuff it's time for something a little lighter. Various groups have been working hard on making Linux an easy to use desktop system. The foremost of these is probably the KDE project (`www.kde.org`) which has just released its first serious beta. KDE is starting to build up quite a collection of tools and all follow a consistent user interface and behavior.

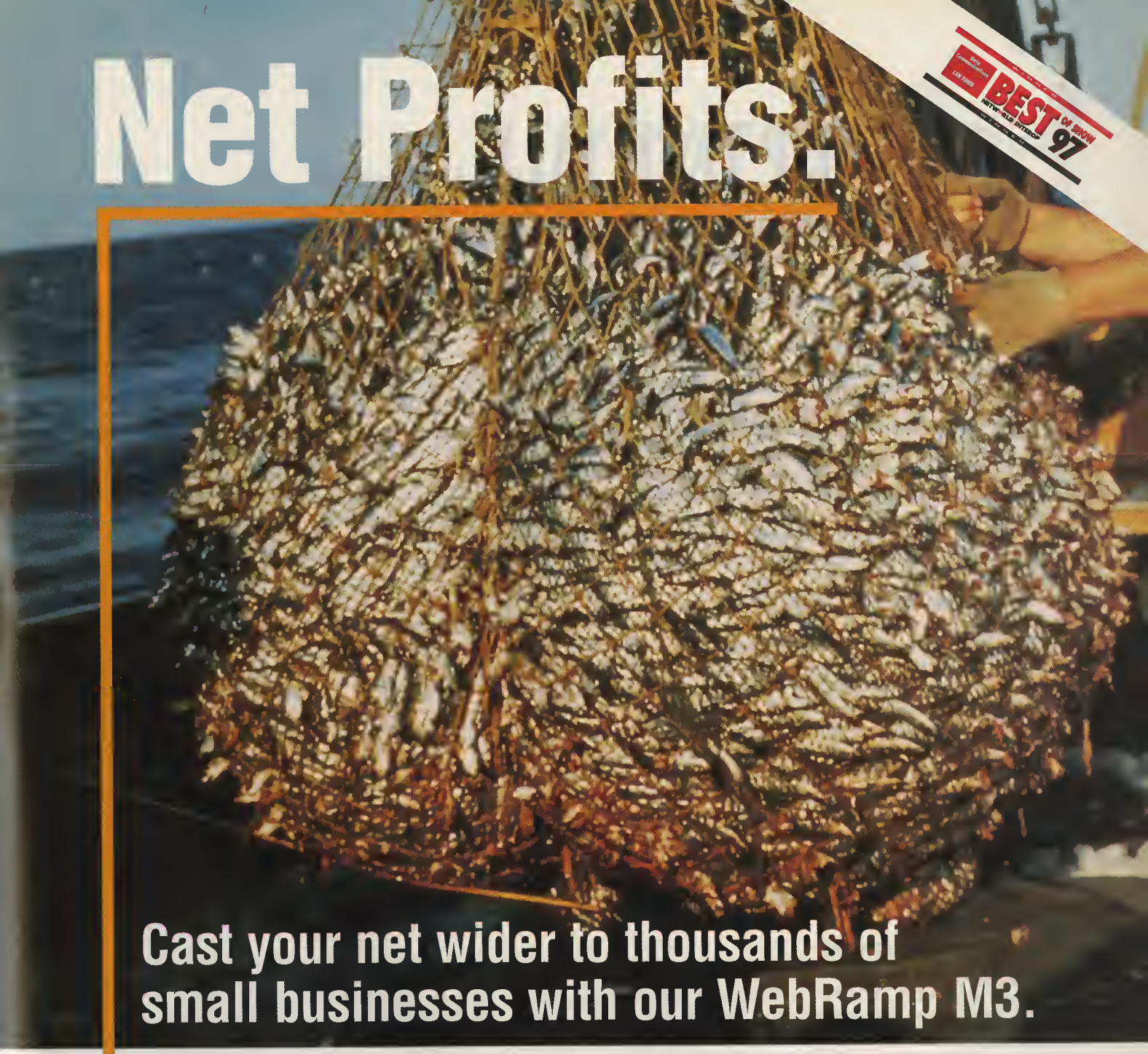
Several other groups are also working on related desktop projects. While there is much friendly rivalry, there is also a real determination to see them interwork, including sensible X11 standards for drag and drop. The Gnome project (`www.gnome.org`) is another project. Unlike KDE, which itself is free but whose library QT from Troll Tech (`www.troll.no`) is only free for free software the Gnome people are working from, the GNU public license based Gtk toolkit used and developed for the Gimp which is the free software worlds answer to Paintshop Pro and friends (`www.gimp.org`).

OTHER NEWS

The Samba team have released Samba 1.9.17. Samba is a tool used heavily in the Linux and UNIX world for serving files using the Windows network protocols (NetBIOS, LAN Manager, CIFS etc). The new release adds a host of features that make it even easier to avoid having to use NT. It now has support for acting as a Windows login server. You can download the new Samba from `http://samba.anu.edu.au`.

Word Perfect 7 for Linux is available from `www.spcorp.com` including an upgrade offer that claims to be valid even if upgrading from an older Windows Word Perfect. ◆

Net Profits.



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ISP TECH TALK by Avi Freedman

USENET NEWS SERVERS — THE SIMPLE VERSION

In the beginning there was mail. And simplicity was upon the face of the UUCP network. And then the net.wizards created mailing lists. And they were good. And useful. But many sysadmins thought that it was wasteful to store copies of the same message in lots of user mailboxes, so the net.wizards created Usenet news — tens, then hundreds, then thousands, then tens of thousands of discussion groups that magically propagate from box to box, being fruitful filling the partitions of the disk. And the net.wizards saw that it was good. Until May of 1997, when 50 percent of the news volume became either spam or cancels of spam.

Avi Freedman started Net Access, the Philadelphia area's original ISP, in October of 1992. Net Access is currently a regional ISP, with and more than 80 downstream Internet providers and dedicated-line customers, and thousands of dial-up and web-hosting customers.

Avi also is cofounder of a new national ISP, Net Access USA, which focuses on dedicated connectivity for ISPs. For information, see www.netaccess.net.

Avi has been very active on the inet-access mailing list and is a vocal proponent of the continued viability of startup and existing ISPs. He is also on the ISP/C Board as director at large. ISPs can join inet-access by e-mail to inet-access request@earth.com with SUBSCRIBE in the subject. Avi can also be reached at freed man@netaxs.com or http://www.netaxs.com

SOME EXPLANATION

News was originally transmitted in "batches," along with e-mail, hopping from box to box using the UUCP protocol. Most of the boxes were UNIX machines of various sorts, running at universities or larger companies, and the UUCP transfers took place late at night when the calls were cheapest. In those days, "Net Access" meant "access to Usenet news and to e-mail" and propagation cross-country and back could take 3 to 5 days (or more). UUCP is still used as a "transport" mechanism for news (and for e-mail), but most of the news and e-mail traffic has long since migrated to that global TCP/IP network called "the Internet." You may have heard of it. . .

DEFINITIONS

"News Transfer" is the process of moving the actual news articles around (articles that have already been "injected" into the Usenet news network). This is now usually done via the NNTP (Network News Transfer Protocol), which runs on top of TCP/IP.

"News Reading" is the process of querying a machine's stored database of news articles and groups — and also of "posting" news. News posting refers to the original place that a given article is injected into the news system.

When an article is posted (not transferred), it is given a globally-unique message ID which identifies the article as it passes from system to system.

HOW NEWS IS PASSED AROUND

Since the beginning of Usenet, the idea was to avoid having one or more key central sites, without which the system would fall apart. So the system was designed for minimal intelligence and maximal redundancy.

In general, every news server peers with at least one other news server, and automatically offers any article received to all of its news peers (except the peer it heard the article from). So if you have one news peer, you'll offer back only articles locally originated — but if you have two news peers, you'll offer to each peer your own local articles and those articles learned from the other peer.

And if you have 10 news peers and one of them is much faster than another, you'll offer hundreds of thousands of articles a day to each of the other eight or nine peers. Actually, I'm lying a bit, here. You do have the ability to restrict which articles you send to which peers — you don't have to offer everyone a "full feed."

NEWS PEERING — WHO'S THE CUSTOMER?

With the Usenet system, it's hard to tell who's the downstream or customer end of a news peering session (vs. who's the upstream or provider end). Everyone peers with everyone else and may the fastest box win.

NEWS STORAGE

The actual news articles are stored in the UNIX file system, and each newsgroup has a directory. So alt.binaries is the /news/alt/binaries directory, and article 5 in alt.binaries is found at /news/alt/binaries/5 . alt.binaries.really.really.sticky is found at /news/alt/binaries/really/really/.sticky, etc...

Each system has a history database which keeps track of the news articles that have already been seen by the news system. These articles may currently exist on-disk; they may be older articles that at one point were on-disk but are now expired; or they may be articles that were not in a newsgroup carried by the system.

Even if an article is not to be stored and kept around on a given news server, its message ID should be noted in the history database, so you waste the bandwidth and CPU time to retrieve the article again and then have to make the same "not interested" determination.

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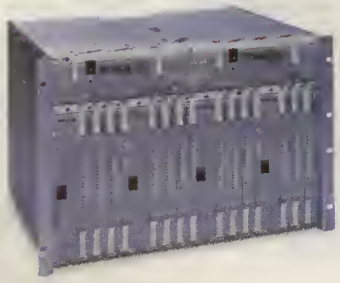

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56K™

A point about news: Yes, it's true. Unless you tell your news peers "don't send me alt.some.new.group.that.someone.created," you must first get an article that has that group listed before you can decide to toss it. This means that you can waste tons and tons of bandwidth and CPU time getting binaries articles that you're never going to store.

NEWS SYSTEM ARCHITECTURE

There's a single process, the inn "daemon" — called innd — that lives off in the background and handles all news-connection requests and all of the news feeding tasks. Any host wanting to talk to the innd and transfer news has to be listed in the hosts.nntp file. Any other host is handed off by innd to an nnrpd (Network News Reading Protocol Daemon, a subset of NNTP). If that host is listed in the nnrp.access file, the nnrpd will talk to it and let it read news — otherwise it'll deny it access. Each nnrpd handles only one news reader at a time, while the innd process handles many (potentially hundreds) of simultaneous news transfer sessions.

THE MOST IMPORTANT FILE

The most important file in the news system is the "active file." This is a list of every newsgroup the system will carry; the minimum and maximum article numbers currently on-disk in that newsgroup; and whether or not the group is moderated.

The active file is maintained by the innd process. You use the "ctlinnd" program to tell the innd process to add or delete groups. As news is posted and transferred in, the innd process updates its in-memory idea of the maximum article number for each group. innd writes the active file out to disk every N minutes (N is a tunable parameter).

The nnrpds (nowadays) all share a read-only copy of the active file — which is good, since it's usually at least a few hundred kilobytes and often a megabyte or two. The size of the active file is one of the major reasons to not throw in thousands of unused extra newsgroups (i.e. "We have all 45,000 newsgroups out there!"). Before the "shared-active patch" (which is now not a patch but is built-in to the inn distribution), each nnrpd loaded and refreshed its own copy of the active file, which was a huge waste of memory!

NEWS.DAILY: THE OVERNIGHT "THING"

Currently, inn requires an overnight cleanup session to purge old news from the news store, and to process logs and clean up some of the databases. The script news.daily, usually run by the cron daemon, takes care of this. For most of the time that news.daily runs, the news system is still available to handle new article posts, but you should expect 15 to 45 minutes of news-server unavailability overnight (unless you modify inn) as news.daily finishes.

Basically, news.daily's job is to run expire and then re-update the databases. Expire looks at the time stamps of the entries in the history databases, and figures out which articles (out of the hundreds of thousands or millions you'll probably have on-disk) need to be deleted — and then goes through the process of removing them. Once that's done, the overview indexes in each directory are rebuilt, and then the server pauses to renumber. This is the period where you'll have to modify the inn system if you want to be able to accept posts 24x7. The renumbering process involves looking at each news directory (potentially tens of thousands of them) and updating the active file's notion of the minimum and maximum article numbers for each group.

As mentioned, logs are processed; rotated; and compressed — and the summary report(s) are mailed to the news administrator(s) of the system.

NEWS FEEDING: NON-STREAMING

The original NNTP protocol had each peer say to a news peer: "IHAVE <this message ID>" — or, in English — "I have this article, do you want it/already have it?" In response, the other news server would say "435," which means "already got it" or "335," which means "no, don't have it, send it to me." Then, if the response was 435, the offering server will send the article text, and the "receiver" will send back "235," which means "got it OK."

But there's a problem with using that protocol when your latency (the round-trip time to send data from site A to site B and back to site A) isn't very low — at least, with today's new loads.

Suppose you're trying to send six articles per second. Let's do the math. If you assume that transferring each article takes only as much time as the inter-machine latency (not a good assumption, but an excellent simplification), we have: 1 second / 12 = 83ms. Twelve is the number of round-trip communications (each article will have a IHAVE/335 round-trip and a <article-body>/235.)

Of course, it usually takes longer than simply the round-trip latency to transfer an article — especially if the article is a few hundred kilobytes in size.

Anyway, it's apparent that if the latency goes above 83ms between the two ends of a news peering session, a full feed isn't possible.

The situation is even worse over saturated 56K and T-1 links, and satellite and trans-oceanic links, where 500ms and up is common.

NEWS FEEDING: STREAMING

We'll skip the implementation details for now, but the "streaming extensions to NNTP" are commonly used. Basically, a message is sent saying "Here are 10 message IDs. Which do you want?." The responder gives back a list of message-ids to send, and the sender sends them all. Though the same amount of data (roughly) is sent, there are fewer "latency" delays.

DESIGNING INN-BASED NEWS SERVERS: THE PROBLEM

Well, what's so hard about designing a news server? Disks. You need disks. Lots of disks. Yes, you need a fairly powerful machine. Something like a Sun Sparc 10 with a 60 to 80 MHz CPU; or a P120 or greater running some sort of BSD or Linux; or an Alpha with a bit of cache RAM (the Multias wont do); and

on and on. For most architectures 128 MB of RAM will be enough to support 5 to 30 news readers simultaneously, but more memory never hurts and memory is cheap.

But about disks, also called "spindles," the problem is that each article that comes in causes a write to:

- the history file (/usr/local/news/history)
- a news log file (/var/log/news/...)
- the article on disk (/news/alt/binaries/sticky/545679)
- the .overview file (/news/alt/binaries/sticky/.overview)

And a full news feed of 600,000 articles now means that you have to keep up with 6 articles per second — and peaks of maybe 20-30 articles per second to keep up. Even if you take 200,000 articles per day, you still have to write two articles per second and do the bookkeeping associated with that, every second.

Then, overnight, you have to search for a full day's load of articles and expire it!

Additionally, you have to support the nnrpds, which want to retrieve articles and .overview files (most of the I/O done by nnrpds is now .overview lookups).

DESIGNING INN-BASED NEWS SERVERS: THE ANSWER

A fairly ideal news disk layout is:

- A system disk, with the OS software. (~1-2 GB)
- A swap disk. (~1-2 GB)
- A disk with the history database. (~1-2 GB)
- A disk with news logs (/var/log/news) (~1-2 GB)
- 2 or 3 "spool" disks with non-binaries group storage (2 GB each)
- 2 or 3 "spool" disks with binaries group storage (4 GB each)
- 2 or 3 disks with overview storage (2 GB each)

In reality, few can afford that many disks. So what you do is make trade-offs. The most common trade-off is to put the .overview files in with the news spool disks. This should be fine until you start getting more than 50 or so simultaneous news readers (nnrpds) running. Often, there is no separate swap disk, which is acceptable if you have 256 MB or so of RAM. Under no circumstances, though, should /var/log/news be on the same disk with the history database — and neither should be on a news spool disk.

EXPIRE TIMES

With the above configuration, you should be able to hold a week or so of non-binaries groups and two to three days of binaries groups — binaries groups are any groups with "binaries" or "sex" in the title — depending on how many of the binaries groups you accept.

SIGNS OF A SLOW SERVER

NNTP is a text protocol. This means that you can just Telnet to port 119 on a news server; type NNTP commands; and see the same responses that a news reading or transferring peer would see.

One simple way to know that your innd is very overloaded is to test the time it takes to Telnet to port 119 on it; get a wel-

come banner; type "QUIT"; and have the connection close. If any of these operations takes much more than half of a second, your news box is getting overloaded. If it takes many seconds, it's seriously overloaded.

This is a test of the "select loop" — how fast innd can come around and service each request.

SIGNS OF A SLOW SERVER: FIX 1

Usually the bottleneck is disk I/O. If the innd is waiting for disks to spin so it can deposit articles or log data, it'll fall behind and not be able to deal with other requests (like requests for new connections and even simple requests to quit). You can use the "iostat -D 1" command under most UNIX OS flavors to see this. If the percent use is near 100 for many seconds, you've got overloaded disks.

SIGNS OF A SLOW SERVER: FIX 2

If you're running an older version of innd (say, before 1.5.1), sites that stream to you can slow down the innd "select" loop. The problem is that innd would sit and read many articles from a given peer before coming along to service the next peer waiting for innd's attention.

The fix was to make each read() from a remote site only read a maximum of 2K or 4K or so before going back to the select loop to service other peers. Normally this is a bad thing — increasing the number of system calls (read() and select() are system calls) increases operating system overhead on the machine, but since innd isn't (yet) multi-threaded, there was no choice other than to disable streaming from remote sites.

The fix is called the "streaming patch," and you should apply it if your select loop(s) are slow but there doesn't appear to be any disk I/O bottleneck.

A QUICK NOTE/FIX ABOUT CONTROL.CANCEL

Stock innd will store all of the 100,000+ cancel messages in one huge directory. If allowed to accumulate, this can cause the expire times to balloon by many hours. Reading from a UNIX directory with tens or hundreds of thousands of entries takes forever! These "cancel control messages" are stored in the spool directory for the phantom group control.cancel.

The answer is to run a process every few minutes to wipe out any files (including .overview) in your control.cancel directory. (Depending on where you put your news spool, this might be called /var/spool/news/control/cancel).

You can add a UNIX crontab entry (the "crontab -e news" will edit the news user's crontab file on many UNIX flavors) to do this. The line looks like:

0,10,20,30,40,50 * * * * (cd /var/spool/news/control/cancel ; rm *)

This makes sure that there will only be a couple of thousand of entries in the control.cancel directory when expire runs.

ONE THOUGHT: OUTSOURCE NEWS

Running a news server is like having a baby. It's more expensive than you could ever initially imagine, both in terms of equipment and especially in terms of man-hours. There are companies that will let you point your users at their news servers. These "news-reading" companies include `zippo.com`, `supernews.com` (the oldest of the bunch), as well as new-comers like newsread.com (owned by the author) and `ispnews.com`.

Things to look for in a news-reading provider are:

• Connectivity — How well-connected are you to their news servers? The number of hops is the commonly used metric, but it's not really accurate. What you should look for is a 60 to 80 ms average ping-time, and low packet loss. Low packet loss is more important than average ping-time, and certainly both are more important than hop-count.

• Completeness of feed — that they get enough news that users won't be complaining about missed articles.

• Number of groups — this may be an advertising issue for you. Some news providers, though, don't have 40,000 groups online — they have 10,000 to 15,000 and will add groups on request.

• Quality of emergency response/tech support. Send them mail at 3 a.m. and see how quickly they respond.

Almost all news-reading providers provide a free trial period, so take advantage of it and get your "news-hog" users to test the services out for you. ◆

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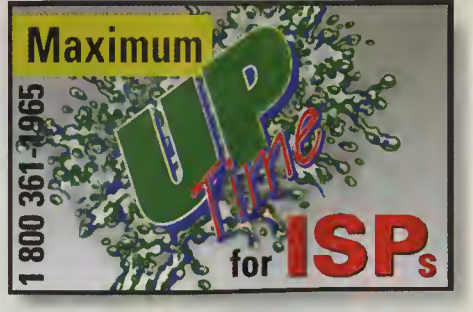

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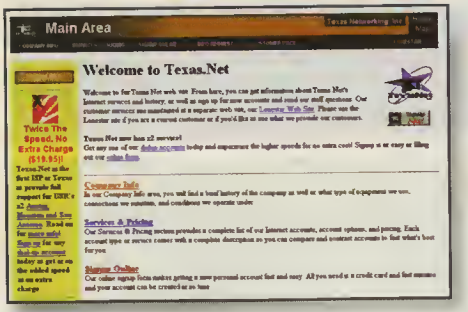

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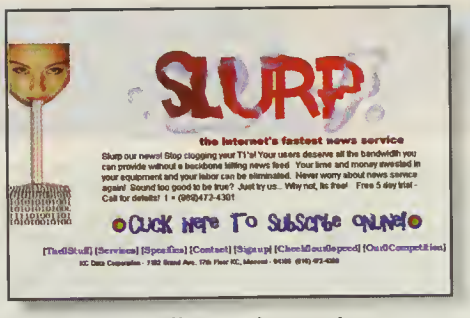

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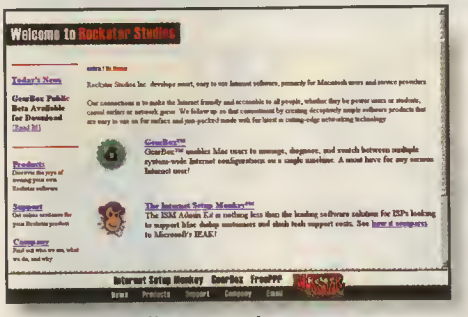

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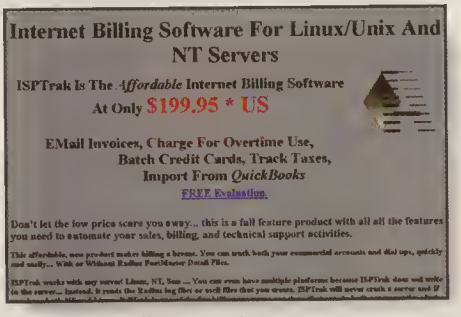

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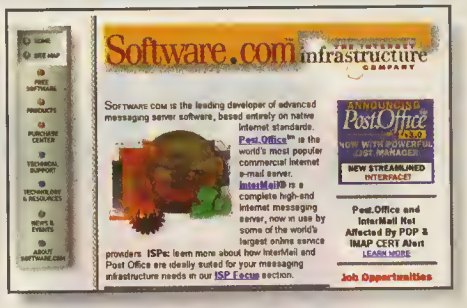

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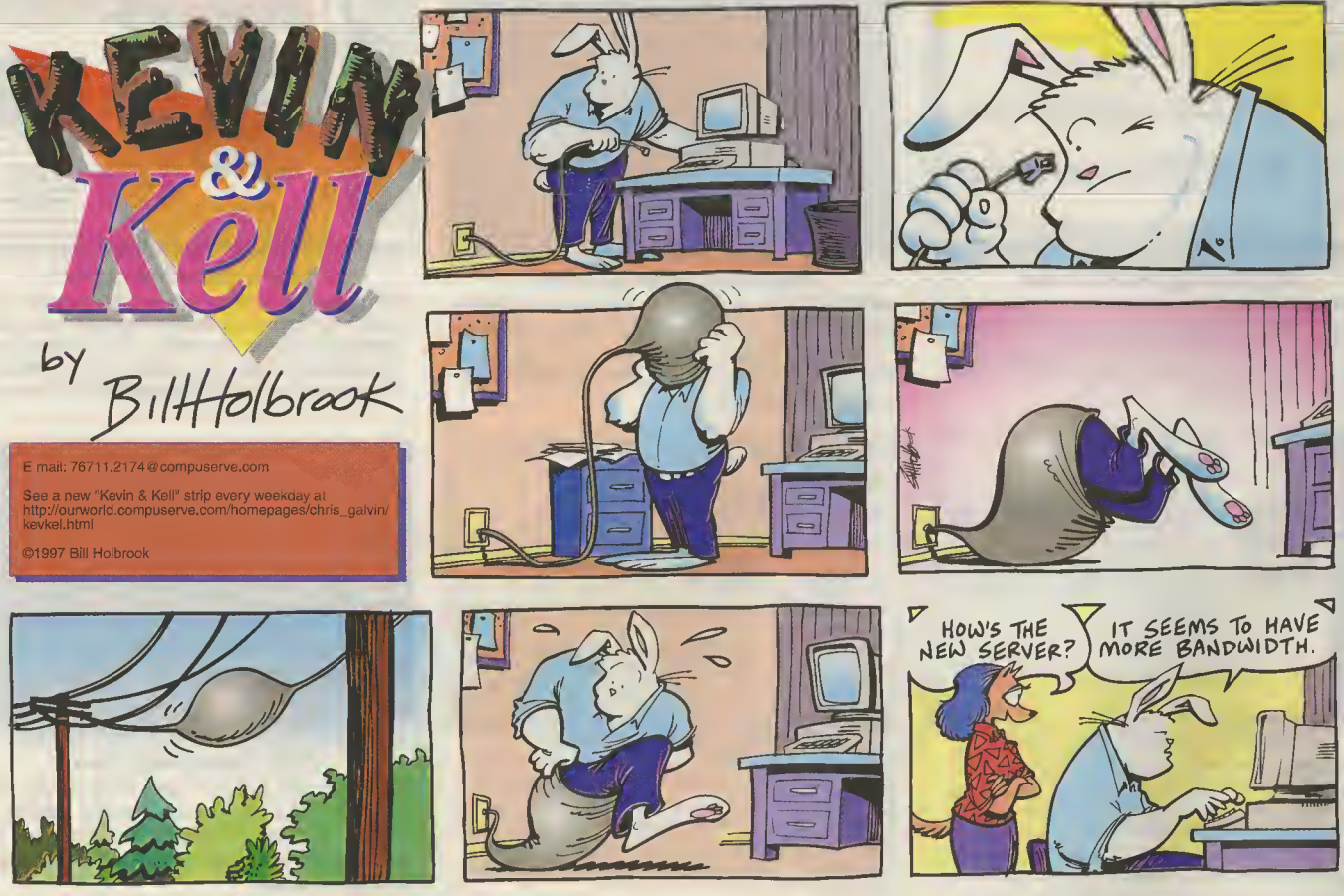

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DVORAK ONLINE by John C. Dvorak

EVERYONE WILL WANT THEIR OWN FULL-TIME WEB CONNECTIONS

If you look at the curve of advancement insofar as processor speed and other technologies is concerned, you'll notice that the curve now looks something like a moon launch — almost straight up. With recent announcements of 3 1/2-inch 20 GB hard drives and DVD systems for inexpensive mass software distribution, we're on the verge of having machines with unimaginable power. With each advancement there are newer and newer kinds of killer applications to take advantage of the new performance and new capacities. From word processing to database management to telecommunications you can equate changes in new system configurations to advancements in the computing scene. The most recent is the advent of the Internet and the Web in particular which was made possible by high speed modem technology combined with the kind of processing power increases necessary to the development of the effective GUI.

Aside: I should mention that much of the overall increased sales of computers and their easy acceptance into society is in large part due to the slot-machine effect of the GUI. Like pigeons pecking on a button for food, the mouse and its click button literally addict people to computing in the same way slot machines create the slot machine addiction effect. After all, the mouse click is a reward system with the same frustrations as a slot machine handle. I have written and spoken about this effect and will continue to do so until someone pays attention. It's just too obvious to be ignored. But I digress.

The point is that computers are more popular and more powerful than ever and this trend seems unabated. With a new high-speed box — just about any K6 or Pentium II — running between 200 to 300 MHz with five to 20 gigs of hard disk and 64 to 256 MB of main memory, *exactly* what can I do with such a thing? To me the answer seems obvious, hook it directly to the Internet and serve pages 24 hours a day, seven days a week. This is exactly what everyone is going to want to do in the year 2000 and beyond. Most readers of ***Boardwatch*** will want to do it today. I know I do. I'm currently serving my pages off the `www.toocool.com` site in Jersey where `www.dvorak.org` resides along with my son's rubblezone.com and easydiet.com. Using the nifty LMHOSTS feature of Windows NT and most versions of Windows 95 the server sits as a virtual site in a folder on my desktop any time I'm on a TCP/IP connection to the Net. It's comforting to have instant access to my site's directories, but I still feel the urge to have the server in my house. This is despite the fact that the toocool server is professionally managed by Rich Cannizzo, a talented Linux hack and all-around good guy. It's also nice that I can get Rich to evaluate high-end networking gear that companies are trying to get reviewed or mentioned in my various columns. Still, there is something about having the server in the house humming away that appeals to me. I imagine I'm not alone and suspect that people would love to have direct service to the Net.

This process of desiring a direct connection begins when you start to write your own web pages. You progress to posting them someplace where you can post for free. This is usually on AOL or CompuServe or on a local ISP. This quickly evolves into getting your own domain names, which you should have done first to stabilize your URL into something easy and permanent. At this point, you need to get your site onto a fast system over which you have more control than is typical from an ISP. Eventually, it means your own server running out of the office or at home serving pages onto the Web. You just have to do something with these humpin' machines!

The drawback is the connection to the Net. I was pleased to see Reed Hundt of the FCC advocate a change in the infrastructure so that people can be connected all the time on a data network. This minimally means, for the home user, an ISDN connection that can be open all day and night without minute by minute charges. If a T-1 connection costs about $1,500 per month, an open ISDN connection should be less than a tenth of that. I'd gladly pay $150 a month flat-fee for an open ISDN connection to the Net. This 128 Kbps connection is 16 kilobytes per second. To make the math easy let's say my web pages are 48 kilobytes. So I can serve out over 28,000 pages a day. For most small businesses and home users this, is more than adequate. Let's face it, when you go to a web site and it says, "You are visitor 773," you know that this person does not require a T-1 to get by. In fact, you might even easily get by on a 28.8 modem which should be able to serve up, however slowly, four to five pages a minute, or around 6,000 pages a day. This should be fine for almost anyone's personal or vanity site. I'm

In addition to his weekly syndicated radio call-in show, *Software/Hardtalk*, syndicated newspaper columns, magazine writing for ***MacUser***, ***PC Computing***, ***DEC Professional***, ***Information Technology***, and his featured "*Inside Track*" column in ***PC Magazine***, Dvorak is the author of several best-selling books, including ***Dvorak's Inside Track to DOS & PC Performance***, ***Dvorak's Guide to PC Telecommunications***, and ***Dvorak's Inside Track to the Mac***. *John can be reached at* `dvorak@aol.com`

sure there are more than a few dorm rooms doing this with a plain modem. (In fact, if you're serving pages on the Net via dial-up TCP/IP connection, e-mail the URL. I'd be interested in seeing how it comes across — dvorak@dvorak.org). It's more than likely to be done through a school or some institutional connection as most ISPs are not keen on someone being connected 24X7 on their systems. But it is what many people will want. All the techies I know who have a cable modem are thinking like this too. And everyone will want it even more as Microsoft, in particular, makes its web server software easier and easier to use. ◆

Dvorak's Recipe Nook

PASTA PUTTANESCA

One reason to cook is to make yourself aware of classic recipes and their variations. One of the most classic is Pasta Puttanesca or Hookers Pasta. The dish was supposedly invented by an Italian prostitute because it was easy and fast to make. There are at least two discreet folklore threads explaining the invention of this dish, all of which, I'm sure, are nonsense.

Essentially this dish is a marinara sauce that has been doctored with Greek olives, capers and anchovies. Some versions do not include anchovies, but it seems traditional. I've looked at a few dozen of these recipes and here is the best composite recipe with variations included in the ingredient list. I'll explain weirder variations afterwards.

PASTA ALLA PUTTANESCA

1-4 garlic cloves, minced
0-1 teaspoon dried hot red pepper flakes (optional) or same amount of black pepper (optional) or both!
1/4-1/2 cup virgin olive oil
1 tsp to 1/3 cup minced fresh parsley leaves (recommended option)
1-4 cups drained canned Italian tomatoes, chopped fine, including 1/3 cup of the juice. Crushed tomatoes are sometimes used and you can obviously do this with fresh tomatoes too.
1-2 ounces of anchovies as fillets (chopped) or paste
6-40 individual kalamata style olives — or as much as one cup! These can be variously halved, or chopped or minced. One recipe incorporates the olives into the dish unpitted and whole.
1 tsp to 2 tbl of drained bottled capers
1/2 to 1 pound spaghetti or penne or just about anything you want to cook. Penne is most common.
0-2 tablespoons freshly grated Romano or Parmesan cheese either grated over the dish or worked into the sauce. (both optional)
0-1/8 cup basil (optional)
0-1/8 cup oregano (optional)
0-2 tbl butter (optional)

As you can see by the "optional," this is basically a dish whose variations have run amok. What's weird is when professionals get hold of this dish and add ingredients for which there is no known history. One of the culinary schools adds julienne prosciutto as if the dish isn't salty enough with the olives and capers. It also added 1/2 cup of minced onion, for which I can't find any precedent. In another arrogant redesign of the dish a restaurant in Connecticut (which posted its menu online) took out the anchovies and added cream. It charged $14 for this variant.

Here is the basic preparation technique. Put the oil in a pan and cook the garlic for a few minutes until softened. Add the pepper flakes if used, cook for 10 seconds. Add the tomatoes and the rest of the ingredients except the olives, capers and anchovies. Simmer for about 10 minutes. Add the remaining ingredients. Continue to cook for another minute. At the very end add the butter, if used. Mix in cooked pasta and top with cheese. The cheese may also be added into the sauce as it's cooking. This dish is seldom served with the sauce poured over the cooked pasta as are many other pasta dishes. It's usually mixed in. Needless to say from the ingredients and from what I've written you have a lot of leeway with this dish. ◆


SETTING UP AN
INTERNET PRESENCE
SHOULDN'T FRAY
YOUR NERVES

THERE ARE ENOUGH COMPLEXITIES IN LIFE. CONNECTING TO THE INTERNET SHOULDN'T BE ONE OF THEM.

Creating an Internet presence can be a frustrating experience, even for the expert. Beyond the web server there are routers to make the connections, FTP to move the files, and e-mail servers to give your mail a home. And don't forget the Domain Name Server that's required so the world can know your name. Even after you gather all the pieces, you still have to integrate them. And the costs, in time and money, can be staggering. But now there is an easier way.

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Number of Vendors	1	5
Total Cost	$8260	$13,600
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Many products claim to be easy to use, but the proof is in the time you spend getting it up and running. With other products you have to *learn everything* before you can *do anything*, and with the Internet there's a lot to learn. Only the IPAD allows you to get started immediately, and learn as you go. Information Week said of the IPAD "*from box to working system in two hours even with mistakes.*"

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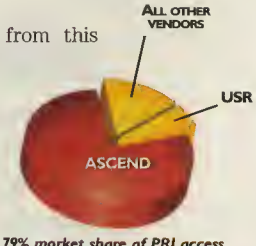
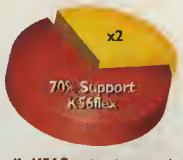


*79% market share of PRI access concentrator ports shipped.**



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